UNIV.OF
TORONTO
LIBRARY

American Medicine

Volume XIX., Complete Series

Volume VIII., New Series

JANUARY — DECEMBER

1913

297524
1:5:34

American Medical Publishing Company,
Burlington, Vt., and New York, N. Y.

Copyright 1913.
American Medical Publishing Co.

CONTRIBUTORS.

AMBERG, EMIL, M. D., Detroit, Mich.
ABRAHAMS, ROBERT, M. D., New York City
ACHARD, H. J., M. D., Chicago, Ill.

BAINES, ALLEN, M. D., Toronto, Canada
BASSLER, ANTHONY, M. D., New York City
BECK, JOSEPH C., M. D., Chicago, Ill.
BEVERIDGE, J. WALLACE, M. D., New York City
BISSELL, DOUGAL, M. D., New York City
BROTHERS, A., M. D., New York City

CAMPBELL, GEORGE A., M. D., Toronto, Canada
CAMPBELL, H. J., M. D., F. R. C. P., Bradford, Eng.
CAUTLEY, EDMUND, M. D., Cantab., F. R. C. P., (London), London, Eng.
COLLINS, JOSEPH, M. D., New York City
CRUTCHER, HOWARD, M. D., Roswell, N. M.

DIXON, THOMAS, M. D., Brooklyn, N. Y.
DRESBACH, WILLIAM, M. D., Ithaca, N. Y.
DRUSKIN, S. J., M. D., New York City
DRUECK, CHAS. J., M. D., Chicago, Ill.

EDGERTON, E. S., M. D., Pittsburg, Pa.
ELLIOTT, J. H., M. B., Toronto, Canada

FERGUSON, WM., M. D., New York City
FISCHER, LOUIS, M. D., New York City
FORSYTH, DAVID, M. D., D. Sc., (Lond.) F. R. C. P., (Lond.), London, Eng.
FRANK, ROBERT T., A. M., M. D., New York City
FREEMAN, ROWLAND GODFREY, M. D., New York
FRENCH, J. M., M. D., Milford, Mass.
FUCHS, ALBERT F., Loyal, Wis.

GABRIEL, M. S., M. D., New York City
GALLOWAY, D. H., M. D., Roswell, N. M.
GEYSER, ALBERT C., M. D., New York City
GITTINGS, J. C., M. D., Philadelphia, Pa.
GLIDDON, W. O., M. D., New York City
GOLDBERG, HARRY, D. D. S., New York City
GOODHUE, E. S., A. M., M. D., LL. D., The Doctorage, Hawaii

HALL, H. O., Librarian U. S. A., Washington, D. C.
HARDING, E. S., M. D., Montreal, Canada
HASTINGS, CHARLES J., M. D., Toronto, Canada
HOAG, WARD BRYANT, M. D., New York City
HODGETTS, CHARLES A., M. D., D. P. H., L. R. C. P. (Lond.), Ottawa, Canada
HOGSETT, S. FULLER, M. D., Pittsburg, Pa.
HOLMES, BAYARD, M. D., Chicago, Ill.
HOLT, L. EMMETT, M. D., New York City
HOUGHTON, H. SEYMOUR, M. D., New York City

JACOBI, A., M. D., LL. D., New York City
JOHNSON, C. K., M. D., Burlington, Vt.
JOHNSTON, HARDEE, A. B., M. D., Birmingham, Ala.

KELYNACK, T. N., M. D., London, Eng.
KERR, LE GRAND, M. D., Brooklyn, N. Y.
KINGMAN, RUFUS A., M. D., Boston, Mass.
KNIGHT, BOYCE W., M. B., L. R. C. P., New York City
KOSMAK, GEORGE W., M. D., New York City
KOVACS, RICHARD, M. D., New York City

LANGMEAD, FREDERICK, M. D., F. R. C. P., London, Eng.
LEDERLE, ERNEST J., Ph. D., New York City

McDONALD, ARCHIBALD, A. B., M. D., Duluth, Minn.
McDONALD, ELLICE, M. D., New York City

NASCHER, I. L., M. D., New York City.
NASMITH, GEORGE G., Ph. D., Toronto, Canada
NATHAN, WM. P., M. D., New York City
NEWCOMB, WILLIAM H., M. D., New York City

O'REILLY, JOHN J. A., M. D., Brooklyn, N. Y.

PERSSON, G. A., M. D., Mt. Clemens, Mich.
PHILIP, SIR R. W., M. D., F. R. C. P., Edinburg, Scotland
PISEK, GODFREY R., M. D., New York City
PRITCHARD, ERIC, M. A., M. D., (Oxon.) M. R. C. P., (London), London, Eng.

QUIMBY, A. J., M. D., New York City

ROBINSON, WM. J., M. D., New York City
ROSE, A., M. D., New York
ROTTER, OSCAR, M. D., New York City

SAPHIR, J. F., M. D., New York City
SAUER, G. M., M. D., Ogilvie, Minn.
SCOTT, GEORGE DOW, A. B., B. S., M. D., New York City
SHEFFIELD, HERMAN B., M. D., New York City
SHIRMER, OTTO, M. D., New York City
SILL, E. MATHER, M. D., New York City
SMART, ISABELLE THOMPSON, M. D., New York City
STARR, CLARENCE L., M. B., Toronto, Canada
STEKEL, WILHELM, M. D., Vienna, Austria
STOUTENBURGH, A. J., M. D., Washington, D. C.

TANNENBAUM, SAMUEL, M. D., New York City

VINCENT, RALPH, M. D., London, Eng.
VOORHEES, IRVING WILSON, M. S., M. D., New York City

WALKER, J. T. AINSLIE, F. R. S. M., F. C. S., New York City
WATKINS, ROBERT L., M. D., New York City
WEINSTEIN, JULIUS W., M. D., New York City
WESSLER, H., M. D., New York City
WIGHTMAN, ORRIN S., B. A., M. D., New York City
WILLIAMS, B. G. R., M. D., Paris, Ill.
WILLIAMS, TOM A., M. B., C. M., Edin., Washington, D. C.
WOODRUFF, CHARLES E., M. D., U. S. Army Med. Dept.

YOUNG, H. B., A. M., M. D., Burlington, Iowa.

AM
ME
ED
AMERICAN
MEDICINE
CI
AN
NE

INDEX.

JANUARY—Pages 1 to 68, inclusive
FEBRUARY—Pages 68 to 130, inclusive
MARCH—Pages 130 to 195, inclusive
APRIL—Pages 195 to 268, inclusive
MAY—Pages 268 to 326, inclusive
JUNE—Pages 326 to 454, inclusive
JULY—Pages 454 to 506, inclusive
AUGUST—Pages 506 to 558, inclusive
SEPTEMBER—Pages 558 to 626, inclusive
OCTOBER—Pages 626 to 694, inclusive
NOVEMBER—Pages 694 to 768, inclusive
DECEMBER—Pages 768 to 836, inclusive

Ability, arithmetical, limited, of the average man, 341
Abrahams, Robert, 183
Accident, public insurance against, and disease, 136
record, our dreadful, 70
Achard, H. J., 111
Adulteration, food, 627
Advertisements, honest, journalistic responsibility for, 704
medical, in medical journals, 704
Agitators, social, harm done by, 511
Air, superheated, in diphtheria, 558
Albuminuria and diseased tonsils—Baines & Campbell, 410
Alcohol and industrial economics, 619
confirming the new view of, 459
medication—Jacobi, 575
treatment of burns, 692
Alcoholic psychosis and psychopathic drinkers—Williams, 104
Alcoholism and the birth rate, 120
Alsberg, Dr., these men endorsed, 10
Aluminum for kitchen purposes, increasing use of, 279
Alveolaris, septic pyorrhea, with joint involvement—Goldberg, 815
Amberg, Emil, 302
Amblyopia, tobacco not wholly to blame for, 336
American Medicine gold medal, 512
Americans decadent? is the old stock of, 1
Anesthesia, local operations upon the rectum under—Saphir, 106
rectal, 829
spinal, 836
Anesthetics, some rules for the use of, 694
Ankylostomiasis, treatment of, 834
Announcement, important, 639
Antiseptics, standardization of, 318
standardization of, recent editorial on the, 515
Apology, an, 206
Appendicitis, 624
cheese as a cause of, 564
Army canteen, 3
Arsenic and mercury, germicidal power of, 705
Arsenobenzol in the local treatment of chancre and other lesions, 682
Arteriosclerosis, remarks on —Nascher, 531
Arthritic patients, what can be done for the relief of our—Stoutenburgh, 259
Arthritis deformans, pathology of, 764
Asepsis, medical, 551
Asparagus, recent analysis of, 324
Asthma, treatment of, 690
Atropine, and strangulated hernia, 124
Auto-intoxication as a cause of mental disease, 500
Attack, expected, 566

Babies, effect of pasteurization of milk on, 193
prize, what will become of these? 569
Bacillus, the Friedmann, 320
Bacilluria, colon, nature of, 561
Baines, Allen, 410
Balkan war, medical experiences in the, 14
Bassler, Anthony, 485
Bath and its hygienic importance, 83
Beaumont, Dr. William, 139
Beck, Joseph C., 209
Benzoate of soda controversy, 74
Beverages, alcoholic, increasing consumption of, 632
alcoholic, ultimate effect of our increasing use of, 633
Beveridge, J. Wallace, 711
Bichloride poisoning, to prevent, 832
Birth rate, 128
rate, alcoholism and the, 120
registration, 683
Bismuth meal, uses and application of, in study of intestinal stasis—Quimby, 237
poisoning, symptoms of, 123
Bissell, Dougal, 496
Bladder complication, caesarean section with unusual recovery—Crutcher, 114
troubles in pregnancy—a cystoscopic study based on 54 cases: (chapter 10) —McDonald, 180
Blond unfitness for city life, 332
Blood, blue—Watkins, 537
detecting occult, in gastric cases, 764
microcytes in — Watkins, 819
pressure, high, treatment of cases of, 323
pressure, organic high, distinction between functional and, 697
pressure readings, importance of differential, 697
Boils, treatment of, 693
Bone, transplantation of, in treatment of fractures, 126
Bones and joints, tuberculosis of—Starr, 472
Boric acid scandal will not down, 696
Boys, to keep the streets clean, 565
Brain, large, 759
Breast-feeding, observations on—Forsyth, 373
Bridges, dental, insanitary, 702
Brieux's "Damaged Goods," presentation of, 139
Bromide, treatment of epilepsy in children with, 766
Brothers, A., 82
Burns, treatment of, by the application of alcohol, 692

Caesarean section with unusual bladder complication, recovery—Crutcher, 114
Campbell, George A., 410
Campbell, H. J., 360
Cancer and pellagra, causes of, 138
cockroaches as carriers of, 281
houses, 280
of the cervix uteri, study of two advanced cases of—Bissell, 496
of the rectum—Drueck, 820
of the stomach, 689
Carrel, 827
Carriers, contagion, disinfection and, 62
Catgut ligatures, preparation of, (chapter 7)—McDonald, 168

Catheter cystitis, prevention of, in the female—Mc Donald, 785
Cautley, Edmund, 348
Cell-growth, stimulating reparative, 684
Cervix, lacerated, technic of the operation, 65
Chancre, local treatment of, and other lesions with arsenobenzol, 682
of the scalp, 449
Cheese as a cause of appendicitis, 564
Child, growing, fruit-addition to the diet of—Scott, 416
hygiene, instruction in, 119
language of the, 121
life, conservation of, 322
welfare, monthly journal devoted to, 453
Child-birth, pituitrin in, 626
Childhood and infancy, hygiene of, 767
common symptoms in, diagnosis of some, 556
mechanisms of, heat regulating—Pritchard, 343
medico-sociological aspects of—Kelynack, 352
treatment in, principles of —Campbell, 360
tuberculosis in—Elliott, 412
Children, acute abdominal conditions of, from the surgical standpoint, 449
acute gastro-enteritis in young—Knight, 52
backward school, 265
education and training of feeble-minded, in the public schools, 62
epilepsy in, and treatment with bromide, 766
fever in, obscure high—Pisek, 400
heart disease in, prognosis of—Cautley, 348
hemorrhagic affections of, rational treatment of the —Kerr, 396
illegitimate, in France, 15
poor, to work, necessity for, 334
school, health maxims for, 120
school, decayed teeth of, 703
summer diarrhea in, 505
young, diagnosis of tuberculosis in, 557
Children's hospitals, importance of, 454
Chloroform, discovery of, 14
Chorea, acute, treatment of—Collins & Gliddon, 405
treatment of, 692
Cigarette smoking, question of, 462
stub, lighted, dangers of the, 462
Cinematograph theatres, ventilation of, 769
City and country death rate, 135
type, evolution of a, 333
Climates, tropical, curious misstatements as to, 518
Cocaine and morphine, enormous consumption of in America, 636
Cockroaches as carriers of cancer, 281
Codes of medical ethics, defect of all, 69
Cold, how to avoid taking, 128.
Colitis, chronic case of—Weinstein, 116
mucous, cause of, 701
mucous, cause of—A. Rose, 832
College of Surgeons, American, 278
Collins, Joseph, 405
Colon, therapy of the, 703
Commissioner, health, of the state, 11
Congress, International Medical, 611
of School Hygiene, Fourth International, 325
Constipation, results of, 700
simple but little used remedy for, 336
Consumption, effect of present methods of prevention on the spread of, 63
prevention of, 6
Consumptive, harmlessness of the, 5
unusual type of, 459
Contagion carriers, disinfection and, 62
Controversy, acrimonious, 567
Convulsions, infantile, treatment of, 267
Cost of infectious diseases, 129
Cottonseed meal, food value of, 2
oil, food value of, 2
Cough, treatment of, 691
Country and city death rate, 135
Court, doctor in, 533, 596
Crime, decrease of, in England, 708
juvenile, novel theory of, 277
Crusade, against fraudulent drugs, 628
anti-cocaine, renewal of, 635
Crutcher, Howard, 114, 614
Cystitis in women, treatment of, with remarks on the practical value of the cystoscope, (chapter 2) —McDonald, 150
catheter, prevention of, (chapter 15)—McDonald, 785
Cystoscope, practical value of the in the treatment of cystitis in women, (chapter 2)—McDonald, 150

Darlington, Dr. Thomas, candidacy of, 629
Death, causes of, International list of, 783
certificate, a standard, 783.
Death rate, city and country, 135
increase of, of people over forty, 463
in 1912, New York City's, 129
Deaths of infants by overlying, 284
Deficiency, mental, value of early diagnosis—Smart, 445
Dental pathology, importance of, 275
Depopulation in France, 81, 641
De Senectute—Houghton, 17
Diagnoses, must our, be accurate?—Williams, 41
Diarrhea, summer, in children, 505
Diathesis—Jacobi, 643
Diet, difficulties in prescribing, 274
of the growing child, fruit-addition to the—Scott, 416
remote effects of, 276
Disease, artificial production of immunity in prevention and cure of, 553
fomites in the transmission of, 501
heart, in children, prognosis of—Cautley, 348
public insurance against accident and, 136
Diseases, infectious, cost of, 129
social, and public enlightenment, 552
Disinfectants, standardization of, 271
Disinfection and contagion carriers, 62
railway, 621
recent problems in, 551
scientific, and what it can save us—Walker, 95
scientific, an essential precaution after infectious disease—Walker, 755
Dispensaries, sociologic position of, as public utilities, 197
Dispensary methods, careless, 197

Diphtheria carriers, curing with staphylococci — Woodruff, 442
superheated air in, 558
Von Behring's new method of producing immunity to, 562
Divorce case, anatomical evidence in a, 760
Dixon, Thomas, 90
Doctor in court—O'Reilly, 533 & 596
ship's, increasing responsibilities of the, 709
Doctors and Dr. Johnson, 80
Doctor's wife, the—Brothers, 82
Doubts, obsessive—Stekel and Tannenbaum, 665
Drainage operations, relation of, to the public health, 501
Dresbach, M., 805
Drinkers, alcoholic psychosis and psychopathic — Williams, 104
Drueck, Charles J., 820
Drug houses, independence of, 632
trade Exhibition and Conference, 626
Drugs, fraudulent, renewed crusade against, 628
narcotic, and school teachers, 571
Drunkards and tramps, New York farm colony for, 137
Druskin, S. J., 190
Dyspeptic, may eat oysters, 458

Ear, nose, throat and, pathological significance of chronic suppuration of the—Beck, 209
Eating and overeating, 128
places, public, proper control of, 627
Eclampsia, diagnosis and treatment of — Kosmak, 477
pathology and etiology of, short resumé of—Frank, 482
puerperal, 324
Economic difficulties of the general practitioner — Sheffield, 298
Economics, industrial, alcohol and, 619
of new medical titles — Young, 660
of medicine—Voorhees, 85
Edgerton, E. S., 312
Editors' Association, American Medical, 342
Education, physical, recent International Congress of, held in Paris—Gabriel, 546
Efficiency, factors of, 562
Effusion, pleuritic, Grocco's sign in, 122
Elimination, 63
Elliott, J. H., 412
Emotions, sex, in their relation to colors and sounds, 16
Empyema, enormous—Galloway, 664
siphon treatment of, in infants and young children, compared with other measures—Holt, 381
end, at the year's, 769
Endurance, remarkable test of, 508
Enteritis, acute or chronic, tuberculosis following,707
Epilepsy, heredity as a factor in, 194
in children and treatment with bromide, 766
Epistaxis, treatment of, 126
Erysipelas, treatment of, 451
treatment of, by tincture of iodine, 127
Eastern Medical Society of New York City, 68, 130, 196, 268, 326, 590
Ethics, medical, defect of all codes of, 69
medical, principles of, 69
Eugenic programme, 684
Eugenics, against, 683
and heredity, in relation to the public health, 615
and prevention of disease, distinction between, 774
another aspect of, 617
is the science of being well-born, 775
life insurance as an aid to longevity and — French, 657
real progress in, 80
teaching of, in schools, 553
Euthanasia, condemnation of, 509
Evils, possible, 75
Examinations, expert, again criticised, 759
Examinitis, 337
Exercise, swimming as an, value of, 570

Farm, New York, colony for tramps and drunkards, 137
Fat hernia, 194
Fatigue, 572
Fats, fluid, into stearin, the new industry of changing, 3
Feeble-minded and idiots, study of mortality in 4,000, 321
children, education and training of, in public schools, 62
living outside of institutions, 622
schools for the, the best insurance policy, 265
Feeding, artificial, of infants —Hoag, 34
artificial, problem of — Knight, 408
breast, observations on— Forsyth, 373
infant, maltose in, 67
infant, modified cow's milk as a substitute food in, 66
infant, remarks on the present day aspects of—Johnson, 591
infant, value of citrated whole milk in — Langmead, 368
Female paradoxes, 4
prevention of catheter cystitis in the—McDonald, 785
Ferguson, Wm., 44
Fever, hay, experimental therapy in—Hogsett, 254
Fever, malta, can be controlled, 84
malta, in Texas, 84
obscure high, in children— Pisek, 400
septic scarlet, intravenous injection of Neosalvarsan in—Fischer, 584
typhoid, hemorrhage in— Johnston, 310
typhoid, vaccine treatment of, 765
Fibro-angioma of the orbit— Shirmer, 191
Fibroid tumors, treatment, with report of 700 cases, (chapter 4)—McDonald, 161
Finger, acute suppurative synovitis of the, 66
Fischer, Louis, 390, 584
Flatulence, treatment of, 766
Fly, simulium, 630
Fomites in the transmission of disease, 501
Food adulteration, 627
and drugs act, meats now under the, 458
modified cow's milk as a substitute, in infant feeding, 66
value of cottonseed meal, 2
value of cottonseed oil, 2
Football injuries, 7
fatalities of 1913, 772
Formaldehyde vapor in the vagina, 504
Forsyth, David, 373
Fracture number, special, 768
Fractures, investigation on value of radiography in, 130

treatment of, transplantation of bone in, 126
France, depopulation in, 81, 641
illegitimate children in, 15
Frank, Robert T., 482
Freeman, Rowland Godfrey, 433
French, J. M., 657
Friedmann bacillus, 320
"cure" for tuberculosis, 131
Dr., may be honest, 205
episode, there is a more serious side to the, 205
remedy, 134
treatment of tuberculosis, 64
Friedmann's, Dr., tuberculosis treatment, personal impressions of—Voorhees, 263
Fruit-addition to the diet of the growing child—Scott, 416
Fuchs, Albert F., 586

Gabriel, M. S., 546
Galloway, D. H., 664
Gall stone, diagnosis of, 554
Gambling, mania for, what is the nature of the? 340
Garlic (allium sativa) and the onion (allium sepa), as a remedy for pneumonia and pulmonary tuberculosis—Hall, 26
Gastritis, chronic, 125
Gastro-enteritis, acute, in young children—Knight, 52
Gentleman, we hold no brief for the, attacked, 465
George, Mr. Lloyd, has scored on the first round, 71
has thus repudiated every promise, 72
struck below the belt, 72
Geyser, A. C., 606, 748
Gittings, J. C., 539
Gliddon, W. O., 405
Goldberg, Harry A., 815
Gonococcus infection, treatment of leucorrhea due to, (chapter 3)—McDonald, 157
puerperal infection from the, (chapter 9)—McDonald, 177
susceptibility of the, to heat, 279
Goodhue, E. S., 187
Gout, reflections on, 682
Grocco's sign in pleuritic effusion, 122
Gynecology and obstetrics, study in—McDonald, 141, 727

Habits, bad, syphilis or, 335
drinking, of the new stocks of Americans, 634
Hall, H. O., 26
Hamlet gouty, was? 635
Harding, E. S., 491
Hastings, Charles J., 428
Hatpin, deadly, 568
Hay fever, 504
experimental therapy in—Hogsett, 254
Health, boards of, incompetent, 772
Commissioner of the State, 11
department, national, possibilities for harm in, 695
maxims for school children, 120
officers, school for, 640
public, and the degree of D. P. H., 321
public, administration the physician's domain, 554
public, heredity and eugenics in relation to the, 615
public, relation of drainage operations to the, 501
we learn slowly in matters of, 571
Heart disease, prognosis of, in children—Cautley, 348
lesions, organic, diagnosis of, 123
orthodiagraphic types — Wessler, 653
Heat regulating mechanisms of childhood—Pritchard, 343
Hemorrhage in typhoid fever Johnston, 310
Hemorrhagic affections of children, rational treatment of—Kerr, 396
Hemorrhoids, external, their radical cure—Sauer, 315
Whitehead, operation for, 625
Heredity and eugenics in relation to the public health, 615
as a factor in epilepsy, 194
exaggerating the power of, 776
real results often overlooked, 776
with especial reference to the law of Gregor Johan Mendel, O. S. A., 552
Hernia, fat, 194
strangulated, and atropine, 124
Herpes, treatment of, 505
Hiccough, relief of obstinate, 129
Hoag, Ward Bryant, 34
Hogsett, S. Fuller, 254
Holmes, Bayard, 649
Hospital, The Modern, 639
Sea-View, plan of the, 707
situation, how the present, affects the general practitioners—Dixon, 90
Staten Island Sea-view, for tuberculosis, 707
Holt, L. Emmett, 381
Houghton, H. Seymour, 17
House surgeon, careful, 84
Hunter, John, lasting influence of, 781
Hutchinson, Sir Jonathan, death of, 685
Hygiene, Bureau of Social, 266
Hydramnion, pregnancy with —Druskin, 190
Hygiene, child, instruction in, 119
mental, 264
mental, Mass. Society for, 619
of infancy and childhood, 767
Hysteria, this is, 76

Idiots, feeble-minded and, study of mortality in 4,000, 321
Ignorance, lay, or indifference, which? 574
Immortality, what Maeterlinck thinks, 826
Immunity and infection, 192
lasting, conferred by proper vaccination, 78
racial, 6
Impregnation, instrumental, report of a case—McDonald, 141
Indicanuria, 66
Industry, sanitary control of, 620
Infancy and childhood, hygiene of, 767
and childhood, tuberculous infection in, 450
cerebrospinal meningitis in,—notes on the diagnosis and treatment—Fischer, 390
diseases of, in New York City, plans for summer work in combatting—Lederle, 425
pneumonia in — Freeman, 433
Infant feeding, maltose in, 67
modified cow's milk as a substitute food in, 66
remarks on the present day aspects of—Johnson, 591
value of citrated whole milk in—Langmead, 368
Infant mortality, 332
English speaking conference on, in London, 452
role played by milk in—Hastings, 428
Infantile convulsions, treatment of, 267
Infants, artificial feeding of —Hoag, 34
death of, by overlying, 284

Infection and immunity, 192
gonococcus, treatment of leucorrhea due to, (chapter 3)—McDonald, 157
problem of place, 6
placing the blame for, 631
puerperal, from the gonococcus, (chapter 9)—McDonald, 177
tuberculosis, in infancy and childhood, 450
Infections, chronic, of the orifices of the body, 701
Infectious diseases, cost of, 129
Influenza, treatment of, 266
Inquest held in London on an insured person, 73
Insane, nursing of the, and research in psychiatry—Holmes, 649
Insanity, early detection of, 201
Inspection, medical, in Manila, 615
Instrumental impregnation, report of a case of, sterility in the female: its etiology and treatment, (chapter 1)—McDonald, 141
Insurance, life, as an aid to longevity and eugenics—French, 657
life, governmental, 136
necessity of some scheme of state, against sickness, 74
policy, schools for the feeble-minded the best, 265
public, against accident and disease, 136
Insured person, an inquest was held in London on an, 73
Intestinal stasis, study of: with remarks on the uses and application of bismuth meal—Quimby, 237
Injuries, football, 7
needless, prevention of, 623
Intramigration, effect of on national health, 777
Iodine, protean, 338
tincture of, treatment of erysipelas by, 127
Issue, the, 620

Jacobi, A., 575, 643
Jacobi, Dr. A., an appreciation—Robinson, 327
Jealousy, professional, danger of, 696
Jenner, up to the time of, 330
Johnson, C. K., 591
Johnson, Dr., and the doctors, 80
Johnston, Hardee, 310
Joints, and bones, tuberculosis of—Starr, 472
Journals, medical, medical advertisements in, 704

Kelynack, T. N., 352
Kerr, Le Grand, 396
Kidneys, too much attention is paid to the, 698
Kingman, Rufus A., 519
Kitchen, increasing use of aluminum for, purposes, 279
Knight, Boyce W., 52, 408
Kosmak, Geo. W., 477
Kovacs, Richard, 118

Labor, difficult, among mountaineers, 339
Langmead, Frederick, 368
Language of the child, 121
Law, insanity, defects in—O'Reilly, 612
national, narcotic, 570
Lead poisoning, 203
Lederle, Ernest J., 425
Legislation, antinarcotic, 76
Leprosy, cure of, an established fact—Goodhue, 187
Leucorrhea, treatment of, due to gonococcus infection, (chapter 3)—McDonald, 157
Life, child, conservation of, 322
insurance, governmental, 136
Lombroso, exit, 761

Malaria, diagnosis of, 765
alta fever can be controlled, 84
in Texas, 84
Maltose in infant feeding, 67
Mania, regicidal, 510
suffragette, for violence, 708
Manufacturer, proprietary, is he justly treated? 826
Maternity cases, care of semi-charitable, in small cities—McDonald, 661
McBurney, Dr. Chas., sudden death of, 707
McDonald, Archibald, 661
Ellice, 141, 150, 157, 161, 163, 167, 168, 169, 177, 180, 727, 733, 785, 792 & 802
Measles, 626
Meat, preservation of, regard to the, 455
Meats now under the food and drugs acts, 458
Mechanisms, heat regulating, of childhood—Pritchard, 343
Medical effects of urbanization, 333
ethics, defect of all codes of, 69
ethics, principles of, 69
experiences in the Balkan war, 14
Medicine, economics of—Voorhees, 85
preventive, presenility a problem in, 118
Tropical, a New York School of, 784
Medico-economic movement—Rotter, 88
its recent organization and activity—Rotter, 316
Medico-sociological aspects of childhood—Kelynack, 352
Men, strong, astonishing failure of, 782
Mendacity, editorial, 641
Mendel, heredity with reference to law of, 552
Meningitis, cerebro-spinal in infancy—Fischer, 390
Mens sana in corpore sano, 121
Mental deficiency, value of early diagnosis of—Smart, 445
disease, auto-intoxication as a cause of, 500
hygiene, 264
Mercury and arsenic, germicidal power of, 705
bichloride, popular use of, 460
poisoning, 760
Metabolism, faulty, rational treatment of certain skin lesions due to—Geyser, 748
Milk, citrated whole, in infant feeding, value of—Langmead, 368
effect of pasteurization of, on babies, 193
effects of pasteurization on the nutritive value of, 452
modified cow's, as a substitute food in infant feeding, 66
pasteurized, and its effect—Vincent, 365
role played by, in infant mortality—Hastings, 428
supply, production of a safe municipal—Nasmith, 467
treatment of, 451
Milks, dried, economic use of, 616
Mind reader, newest, 200
Miscarriages, treatment of, 557
Morality and the surgeon, 761
Morphine and cocaine, enormous consumption of, in America, 636
Mortality, infant, 332
infant, English speaking conference on, in London, 452
infant, role of milk in—Hastings, 428

lower, rates of women, 202
study of, in 4,000 feeble-minded and idiots, 321
Mothers, teachers as, 642
Movement, medico-economic —Rotter, 88
Murder will out, 15
Music, educational value of, 778
Mycrocytes in the blood—Watkins, 819

Napoleon's symptoms, explanation of, 283
death, cause of, 283
Narcotic law, national, 570
Nasal septum, personal experiences with the submucous resection of the—Ferguson, 44
Nascher, I. L., 531
Nasmith, Geo. G., 467
Nathan, P. Wm., 47
Neosalvarsan, intravenous injection of, in septic scarlet fever—Fischer, 584
Nephritis, diagnosis of, 124
treatment of, and its allied conditions, 699
toxemic origin of, 699
Neurasthenia, sexual, 694
Newcomb, William H., 57
New York City's death rate in 1912, 129
Nitro-glycerine tablets, deterioration of, 79
Nose affections, the role of the surgeon in certain forms of—Newcomb, 57
throat and ear, pathological significance of chronic suppuration of the, with demonstration of specimens—Beck, 209
Nurses, trained, criticisms of, 461
Nutrition, prenatal, 560

Obesity, 626
Obstetrical forceps, new, (chapter 5)—McDonald, 163
Obstetrics, and gynecology, study in—McDonald, 141 & 727
use of pituitary extract in, 693
Ocular defects and their relation to the health and work of the student—Dresbach, 805
Oil, cottonseed, food value of, 2
of thyme, use of, 268
rattlesnake, in treatment of rheumatism—Crutcher, 614
Onion (allium sepa) and garlic (allium sativa) as a remedy for pneumonia and pulmonary tuberculosis—Hall, 26
Open-air schools, rapid growth of, 61
Operations upon the rectum under local anesthesia—Saphir, 106
Operation, surgical, an ancient, 573
Whitehead, for hemorrhoids, 625
O'Reilly, John J. A., 533, 596, & 612
Orifices of the body, chronic infections of the, diseases due to, 701
Orthopedic surgery, what the general practitioner should know about—Nathan, 47
Ovarian pregnancy—McDonald, 802
Overeating, eating and, 128
Oysters, every dyspeptic may eat, 458
Ozena, treatment of, modern, 689

Pancreatic ferments, therapeutic virtues of the, 507
Pasteurization, investigation of effects of on the nutritive value of milk, 452
of milk, effect of, on babies, 193
Pasteurized milk and its effect—Vincent, 365
Pathology, dental, importance of, 275
Patient, surgical, feeding the, 638
Pediatrics, origin and development of, 329
progress of, 331
Pellagra and cancer, causes of, 138
situation, seriousness of the, 631
Perineum, laceration of the, and primary repair—McDonald, 733
Peristaltic hormone, action of the, after oral administration—a clinical report—Achard, 111
Persson, G. A., 305
Philip, Sir R. W., 285 & 578
Phthiriasis in women, treatment of, 829
Physician, relation of the, to social service—Gittings, 539
Pisek, Godfrey R., 400
Pituitary extract in obstetrics, use of, 693
Pituitrin in childbirth, 626
Placenta previa (chapter 16) McDonald, 792
Pleuritic effusion, Grocco's sign in, 122
Pneumonia and pulmonary tuberculosis, the onion (allium sepa) and the garlic (allium sativa) as a remedy for—Hall, 26
in infancy—Freeman, 433
treatment of, 762
Poisoning, bismuth, symptoms of, 123
bichloride, to prevent, 832
corrosive sublimate, treatment of, 571
lead, 203
mercury, 760
Poliomyelitis, acute anterior, diagnosis of, 687
Poverty due to tuberculosis, 195
Practitioner, economic difficulties of the general—their principal causes and remedial measures—Sheffield, 298
Practitioners, general, how the present hospital situation affects the—Dixon, 90
Pregnancy, bladder troubles in—a cystoscopic study based on 54 cases, (chapter 10)—McDonald, 180
diagnosis of early, (chapter 8)—McDonald, 169
ectopic, diagnosis of, (chapter 13)—McDonald, 727
extra-uterine, diagnosis of, 687
longings of, 561
ovarian, (chapter 17)—McDonald, 802
pernicious vomiting of, 323
pernicious vomiting of—Kingman, 519
sero-diagnosis of, 503
with hydramnion, report of case of—Druskin, 190
Presenility, a problem in preventive medicine, 118
Preservatives, practical harmlessness of the, 75
question of—Harris, 831
Pritchard, Eric, 343
Professors, whole time, medical endowments and, 710
Progress in eugenics, real, 80
Psychiatry, research in, nursing of the insane and—Holmes, 649
Psychological factors in medical work—Amberg, 302
Psychopathic drinkers, and alcoholic psychosis—Williams, 104

Puerperal eclampsia, 324
Pulmonary tuberculosis, treatment of cough in, 124
Putrefaction, intestinal, treatment of—Beveridge, 711
Pyorrhea alveolaris, septic with joint involvement—Goldberg, 815

Quimby, A. J., 237

Racial immunity, problem of, 6
Race-suicide, theological views of, 79
Radioactive therapy, contraindications to, 195
Radiography, investigation on value of, in fractures, 130
Radium-emanation, present therapeutic status of, in nascent state—Persson, 305
Reaction, Von Pirquet, 123
Record, our dreadful accident, 70
Rectum, cancer of—Drueck, 820
operations upon the, under local anesthesia—Saphir, 106
Reflections on moot subjects —Fuchs, 586
Registration, birth, 683
Regret, it is a matter of, 12
Regurgitation, gastric, case of—Weinstein, 548
Rejuvenescence, 622
Rheumatism, rattlesnake oil in the treatment of—Crutcher, 614
gonorrheal, a successful treatment of, 828
Rheumatoid arthritis, observations on an interesting case of—Wightman, 20
Robinson, William J., 327, 831
Rose, A., 832
Rotter, Oscar, 88 & 316

Salvarsan, scarlet fever treated by, 450
two years' experience with, 835
Sanitation, mine, 618
rural, 685
urban and rural life from the viewpoint of, 550
Saphir, J. F., 106
Sauer, G. M., 315
Scalp, chancre of the, 449
Scandal, boric acid, will not down, 696
Scarlet fever, care of the throat in, 694
treated by salvarsan, 450
School children, backward, 265
children, health maxims for, 120
for health officers, 640
public, curricula, recent criticisms of the, 204
teachers, alleged perils of, 780
Schools for the feeble-minded the state's best insurance policy, 265
public education and training of feeble-minded children in the, 62
rapid growth of open air, 61
teaching of eugenics in, 553
Scientist, a true, 513
Scott, George Dow, 416
Scurvy, bacterial origin of, 342
Seasickness, mystery of, 8
Sepsis, results of, 702
Septum, nasal, submucous resection of—Ferguson, 44
Sero-diagnosis of pregnancy, 503
Servants, public need of medically trained, 629
Sewage disposal of greater New York, 618
Sex emotions in their relation to colors and sounds, 16
Sheffield, Herman B., 298
Shirmer, Otto, 191
Sickness, necessity of some scheme of state insurance against, 74
Sign, Grocco's, in pleuritic effusion, 122
Sill, E. Mather, 440
Singing, value of for mental defectives, 779
Siphon treatment of empyema in infants and young children compared with other measures—study of 154 cases—Holt, 381
Skin lesions, rational treatment of certain, due to faulty metabolism—Geyser, 748
sterilization of the, (chapter 6)—McDonald, 167
Smallpox, step toward the conquest of, 318
therapeutic conquest of, 269
Smart, Isabelle Thompson, 445
Society for the Advancement of Clinical Study, 130
of American Bacteriologists, 130
Sociology, surgical, 119 & 621
Soda, benzoate, controversy, 74
Spectacles, invention of, 768
Speeding-up, 199
Spondylose rhizomelique, cure of, 642
Spotless town, crusade for a, 455
Stains and how to remove them, 325
Standardization of antiseptics, 318
antiseptics, our recent editorial on the, 515
Staphylococci, curing diphtheria carriers with—Woodruff, 442
Starr, Clarence L., 472
Stasis, intestinal, 700
State insurance, necessity of some scheme of, against sickness, 74
Statistics, misuse of, 202
vital, 122
Stearin, new industry of changing fluid fats into, 3
Stekel, Wilhelm, 665
Sterility in the female; its etiology and treatment, with report of a case of instrumental impregnation, (chapter 1)—McDonald, 141
Sterilization of the skin, (chapter 6)—McDonald, 167
Stock American, is the old decadent? 1
Stomach, cancer of the, 689
Stomach, post-mortem finding of a large foreign body in the—Edgerton, 312
Stoutenburgh, J. A., 259
Suffrage, female, medical discussion of, 773
Suffragettes, 831
militant, 774
Suicide, imitational, 199
increase of, in England, 509
race, theological views on, 79
temptation to, 760
Surgeon, morality and the, 761
role of the, in certain forms of nose affections—Newcomb, 57
Surgeons, American College of, 278
Surgery, orthopedic, what general practitioners should know about—Nathan, 47
Surgical sociology, 119
Swimming as an exercise, value of, 570
Symptoms of bismuth poisoning, 123
Syphilis or bad habits? 335

Tablets, nitro-glycerine, deterioration of, 79
Tannenbaum, Samuel, 665
Teachers as mothers, 642
school, and narcotic drugs, 571
Teeth, decayed, of school children, 703
patients', physicians and, 762
Tenosynovitis, acute suppurative, of the finger, treatment of, 66
Texas, malta fever in, 84
Thaw alienists, 565
Therapeutics, physical, 763
Therapy, contraindications to radioactive, 195

in hay fever, experimental —Hogsett, 254
of the colon, 703
vaccine, in Europe, 194
Throat and ear, nose, pathological significance of chronic suppuration of the, with demonstration of specimens—Beck, 209
care of the, in scarlet fever, 694
Thyme, oil, use of, 268
Thymo-lymphaticus, diagnosis of the status, 689
Tic douloureux, high frequency current in—Geyser, 606
Tipple, is a small daily, of any use? 634
Titles, new medical, economics of—Young, 660
Tobacco not wholly to blame for amblyopia, 336
Toe, hammer, 626
Tonsils, diseased, albuminuria in—Baines & Campbell, 410
Tour, travel study, for medical men—Kovacs, 118
Tramps and drunkards, New York farm colony for, 137
Transplantation of bone in treatment of fractures, 126
Travel study tour for medical men—Kovacs, 118
Treatment, principles of, in childhood—Campbell, 360
Tuberculin, remarks on the use of—Harding, 491
return of, to favor, 7
Tuberculosis, cause of active, 5
day camp for, 193
diagnosis of, in young children, 557
following acute or chronic enteritis, 707
Friedmann "cure" for, 131
Friedmann treatment of, 64
in childhood—Elliott, 412
of bones and joints—Starr, 472
of lung, 626
passing of—Philip, 285
poverty due to, 195
pulmonary, comparative value of the different physical signs in incipient—Abrahams, 183
pulmonary, the onion (allium sepa) and garlic (allium sativa) as a remedy for pneumonia and—Hall, 26
pulmonary, treatment of cough in, 124
secret notification of, 559
Staten Island sea-view hospital for, 707
treatment, Dr. Friedmann's, personal impressions of—Voorhees, 263
universality of, 4
Tuberculous entitled to public aid, 559
industrial colony for the, 617
infection in infancy and childhood, 450
Tubules, uriniferous, cells from, in relation to diagnosis and prognosis—Williams, 603
Tumors, fibroid, treatment of, with report of 700 cases, (chapter 4)—McDonald, 161
Typhoid fever, hemorrhage in—Johnston, 310
municipal, great reduction of, 770
reduction of, greatest achievement of modern sanitation, 771
vaccine treatment of, 765

Ulcers, gastric and duodenal, points gained during ten years' experience in cases of—Bassler, 485
Urbanization, medical effects of, 333
Uteri, cervix, cancer of the—Bissell, 496

Vaccination, lasting immunity conferred by proper, 78
Vaccinations, spurious, 270
Vaccine, Jennerian, free of pus germs, productions of, 270
therapy in Europe, 194
treatment of whooping cough—Sill, 440
Vagina, formaldehyde vapor in the, 504
Vasectomy and public right, 192
Vegetarianism, as to, 338
Ventilation, art of, 500
Vertigo, 322
Vincent, Ralph, 365
Vital statistics, 122
Vomiting, pernicious, of pregnancy, 323
pernicious, of pregnancy—Kingman, 519
Von Pirquet reaction, 123
Voorhees, Irving Wilson, 85 & 263

Walker, J. T. Ainslee, 95 & 755
Wallace, Alfred Russell, death of, 784
War, Balkan, medical experiences in the, 14
Watkins, Robert L., 537 & 819
Weinstein, Julius W., 116 & 548
Wessler, H., 653
Whooping cough, vaccine treatment of—Sill, 440
Who shall be F. C. S.? 641
Wife, the Doctor's—Brothers, 82
Wightman, Orrin S., 20
Wiley's, Dr., attitude, 10
successor, 8
Williams, B. G. R., 41 & 603
Williams, Tom A., 104
Wilson's, Woodrow, eminence, the ethnic significance of, 1
Window, open, 767
Wine, and women, 3
Women and wine, 3
lower mortality rates of, 202
necessity for, to work, 456
Woodruff, Charles E., 442
Work, necessity for poor children to, 334

Young, H. B., 660

American Medicine

H. EDWIN LEWIS, M. D., *Managing Editor.*
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.
Copyrighted by the American Medical Publishing Co., 1913.

Complete Series, Vol. XIX, No. 1.
New Series, Vol. VIII, No. 1.

JANUARY, 1913. $1.00 YEARLY in advance.

The ethnic significance of Woodrow Wilson's eminence has not been suspected, though a flood of biographical literature has tried to explain him. His grandparents were immigrants from Great Britain and his elevation to the Presidency seems to mark the beginning of the end of control of the nation by the descendants of the people who achieved our independence. The Colonial families are now more interested in genealogical research than in the welfare of posterity. The sons of something or other have therefore been neglecting their control of the nation's destinies, and the new stocks are taking up the burden. The late Governor Johnson of Minnesota was the son of Scandinavian peasants and if he had lived there is little doubt that he would have been President. More than half the nation is foreign born or of foreign born parents and they all seem to have developed more or less distrust of the ancestor hunting enfeebled descendants of really great men of Revolutionary fame. Many voters do not think of this side of the matter at all, though the fact that a candidate is Irish or German is sometimes advertised locally to catch a few votes. This trick is not so popular as it once was, for it may cause greater loss than gain. The rise of the more recent stocks must be explained on other grounds and this is where the medical profession is keenly interested.

Is the old stock of Americans decadent? That is the usual explanation for the failure of the sons of our great men to be as great as their ancestors, but the same phenomenon is seen in every other nation. Great men rarely marry great women and the children may inherit from the feeble parent. In the lower walks of life, exceptionally able people occasionally mate together, and produce children who become eminent. Great families therefore are constantly producing great men, generation after generation, though the majority of their children are below the average. At the same time new blood is just as constantly forging ahead and occasionally snatching control from the hands of scions of old families. Unfortunately the scions of the old stocks in America are not as numerous as in Europe, and there is ample ground for the belief that an unsuitable climate or other adverse factor is causing such racial deterioration as to prevent great achievements. It is certainly a fact that our great fortunes were begun, as a rule, by immigrants like Astor, Carnegie, Guggenheim, or by the first or second generation as the first Vanderbilts. Foreigners figure quite largely in science and invention, such as Carrel and John Ericsson.

Foreign names wholly different from those of pre-Revolutionary families seem to monopolize many lines of industry. All this rather hints at racial decadence of the old stock, but it must be remembered that new conditions require new types which would have been utter failures in the colonies, and that even George Washington might have been as much out of place in modern New York as was General Grant in Wall Street. There is no question that both factors are true. Mr. Wilson might have been a failure among the farming communities of the 17th century, but he seems to fit into new conditions and has lost little, if any, of the energy of his foreign born grandfather. In any case, he shows that the nation's destinies are drifting into the hands of those whose ancestors came to America in the 19th century, long after the nation became a great reality. The old stock is being elbowed to one side.

The food value of cottonseed meal is a matter for serious consideration now that the high cost of living is bringing want to so many of the poor. The seeds are so rich in fats as to be indigestible, even to cattle, but after the oil is pressed out the meal becomes a valuable animal food quite rich in starch and protein. No one has considered the meal in any other light than as cattle food, fertilizer or fuel, but it should be practicable to purify or refine it to make it acceptable to human stomachs. We can no longer subsist on crushed wheat and must depend upon refining processes to remove the irritating outer layers of the grains. Special treatment may render cottonseed meal acceptable as a food, instead of waiting as we do now to turn it into beef. Perhaps the pure starch itself might be as profitably extracted as from the grains or tubers. The enormous quantity of cottonseed yearly available as a side product in cotton growing, almost staggers belief as it is measured in millions of tons, our yearly crop of cotton being fifteen million bales. We should not wait for private enterprise to invent ways of extracting this food from the seed, though of course it will be done as soon as it is profitable. Necessity is the mother of all such inventions, but we should anticipate necessity by working out the methods by governmental agencies. A great industry—or many of them—may be created from what was recently a waste product.

The food value of cottonseed oil has finally been recognized in spite of the prejudice of peoples who have depended upon solid fats so many thousand of years that they cannot relish the fluid ones. While the Mediterranean nations have in the comparative absence of animal food obtained their fats from the olive, the northern races have been forced to resort to butter, lard and tallow. There is then ample reason for the habit of soaking everything in oil in the south, and the apparently extravagant use of butter and suet in cakes and puddings in the north. The Italians have long been in the habit of selling their high priced olive oil and subsisting on imported cheaper cotton oil—the food value being the same, the difference being one of taste recognizable only by the trained palate. Indeed immense quantities of refined cotton oil are reimported in America as olive oil and few buyers know the difference. There is no sense in this expensive roundabout way of getting food, and sensible people are therefore buying cottonseed oil for the table in preference to the ex-

pensive imported article whether it be pure or spurious olive oil.

The new industry of changing fluid fats into stearin has sprung up in a night and has made it possible to furnish northern races with the solid fats they prefer, but now derived from plant cells instead of animal. It is one of the first of the long predicted steps of the synthesis of foods by chemical means. Only a few years ago it was discovered by chemical investigators that it was possible to introduce an atom or two of hydrogen into the olein molecule and thus produce stearin. Before we even knew of this remarkable discovery, it was made a commercial success because stearin being an animal product is quite expensive, but that produced from vegetable oils is comparatively cheap. The new synthetic fat is now manufactured in large quantities as a basis for synthetic butter, lard and suet. The chemical composition, digestibility and wholesomeness are identical with the natural products, and being much cheaper are brought within the reach of those who now stint themselves. The stupid class legislation which taxes synthetic or manufactured butter to protect the dairy farmer now reacts against the cotton grower and must be repealed—and the sooner the better. The dairyman has been impudent in demanding that new sources of food be taxed out of existence, and the consumers have been injured to that extent. Let there be free trade in foods, for there are too many hungry people in America in spite of our great production of food. The day of synthetic food has at last arrived, and the population will increase in proportion. A few years hence the land will not produce near enough—and an increasing percentage of us will subsist on the synthesized fats and proteins. Our cotton field may soon supply us with food as complete as milk—protein, fat and starch—perhaps sugar also if we can change the starch into sugar profitably without the intervention of plant enzymes. Cotton must never be King again, but the grower must not be enslaved to the dairyman. The vicious legislation must be repealed at once and probably will be by the new administration and Congress.

Women and wine have been linked together in song, and now they are yoked together in practical politics. Since the granting of the suffrage to the women of California there have been numerous local elections on the subject of prohibition or license, and in nearly all of them, the liquor interests have won by the aid of the women—the most amazing of all the amazing paradoxes of our political history. The cause is very evident. A very small minority of women banded themselves together in the W. C. T. U. to lessen or eliminate the curse of drunkenness,—a noble purpose in which they have accomplished wonders for the good of the nation and mankind. The most wonderful result of all was the way they deceived themselves into believing that all the rest of the women in the land were solidly behind them for prohibition. They have repeatedly clamored for the franchise as the first step in ending the liquor traffic forever. It must be a great shock to them to learn what so many have vainly tried to tell them; namely, that women are divided in opinion on this subject in about the same proportions as the men, and that female suffrage might damage the usefulness of the W. C. T. U. in its legitimate sphere.

The army canteen is now put in an entirely different light. The W. C. T. U.

had succeeded in terrorizing Congress into the belief that the women of the country were in favor of the exclusion of beer from the soldier's club, and that anyone who opposed them would be retired from public life. A small section of the W. C. T. U.—a noisy, hysterical, unbalanced section—were taken as representative of the vast majority of normal women who never said anything in public, but who resented being grouped with Carrie Nation, and are now expressing their ideas by votes. As suffrage seems to be spreading very rapidly in spite of the criminal conduct of a few of the English fanatics, our congressmen are facing a curious dilemma. If they vote to restore beer to the canteen and thus deal a death blow to the groggeries around army posts, and lessen the accompanying evils, they are sure to receive some unbalanced criticism from the extremists, but if they do not restore beer, they are sure to be driven from public life in every place where women have votes. The wide differences of opinion which are being expressed as to the relative good and evil of beer or no beer, make an outsider hesitate as to which to advocate from a purely sanitary side, or which plan offers the fewer temptations to these soldiers—mostly mere boys. We are now merely calling attention to the fact that the canteen law was contrary to the wishes of the majority of men and women of certain places—probably of all the country—and is sure to be repealed if we can judge by the character of the signers of the numerous petitions now being presented to Congress.

Female Paradoxes Seem to be Normal.—We have long taken the stand that it is psychologically impossible for a man to understand a woman, and the amazing results in the liquor votes rather strengthen that view. To be sure the women in favor of liquor might be expressing their ideas by votes, and those opposed might be staying home, but there is no evidence of it, though such was predicted. Another startling result is the realization that the women who can use liquor without abusing it—the vast majority of them, by the way—have served notice that they do not propose to sacrifice their own comfort to keep liquor from the few who do abuse it and are often not worth saving. This may be selfish, even cruel, but it seems to be a fact and shows that we may confidently expect them to do the unexpected. They have always done that, and yet the world moves on regardless. It will move on the same after they get votes, unless we are woefully in error. Perhaps it may move a little better if they are able to check the fanatics, for we hear less of unwise acts of the W. C. T. U. since their suicidal attack on the army canteen. It seems as though workers were going into other lines of activity—antituberculosis, settlement centers, and what not—whereas the W. C. T. U. was once the only outlet for restless souls bursting to do good. Dickens showed us long ago that the Anglo-Saxon is not happy unless he is interested in some society for the abolition of something, somewhere. It's in our blood. So why worry?

The universality of tuberculosis is the legitimate conclusion from the most recent advances in the study of this infection. Children are born free of it, but begin to pick it up as soon as they begin to crawl. Tuberculin tests are said to prove that by six years of age practically every child is tuberculous, but the infection is received

in such small doses that it really amounts to a perpetual vaccination, which makes everybody immune. It would probably be more accurate to say that every one becomes tolerant of the invader, rather than immune, for it is claimed that if post-mortem examinations are made with sufficient minuteness, one or more latent foci of infection will always be found. If children receive over doses before they have had time to acquire tolerance they invariably develop miliary tuberculosis, but the vast majority of them tolerate the invader and remain tubercular the rest of their lives. This is the reason why the infection is nearly always a local one. To be free of tuberculosis would be a disaster, for we would then have no resistance to the bacilli which may invade us in large numbers at any time.

The cause of active tuberculosis must now be sought in something which destroys our tolerance, and permits our own lesions to develop. Chief among these causes are the acute infections. Measles and whooping cough have long been known as the starting points of tuberculosis, but now typhoid fever has been discovered to be the most potent of all the infections in this respect. Since attention has been called to it, certain investigators have expressed amazement at the frequency with which typhoid fever is found in the early history of consumptives. Pneumonia also is now being recognized as a potent destroyer of our tolerance, it being a common starting point. In addition to these infections, anything else which lowers the general health, may thus interfere with that constant production of antibodies upon which our tolerance depends. We can definitely trace many cases to a long period of over work, alcoholic excesses, exposure to wet or adverse climatic conditions. Indeed anything which interferes with a perfect condition of health, may allow the spread of a focus of infection which we had carried around for a half century or more. Even senility itself may do this. Many men carry the pneumococcus in their mouths all their lives, only to be killed by it in the end, and we must now look upon the tubercle bacillus in the same light of a constant companion, harmless as long as we remain in good condition, but a malignant enemy the instant our guards are lowered.

The harmlessness of the consumptive is evident if all these new speculations are correct. The ten per cent of the community who lose their tolerance, cannot possibly injure the other ninty per cent., and that is the reason why so few who nurse the tuberculous become consumptive. It seems ridiculous to object to the presence of a sanatorium, especially since the objectors themselves are tubercular, and may become active cases at any time. Moreover this calamity is actually warded off in the vicinity of sanatoriums through the dissemination of knowledge of proper ways of living. Fear of the consumptive is absurd if all the world is tubercular. The new idea is, that every one gets his infection in childhood and never in adult life. The early and repeated infections are really vaccinations which save us from miliary tuberculosis later. Were it not for this tolerance the localized infections of adults, who lose some of their tolerance, would be impossible. The discovery of the tubercle bacillus in the consumptive, before it was found in the healthy, was disastrous in one sense of the word, for it created the impression that the infection was always contracted in adult life immediately prior to the time symptoms of activation appeared. We have

actually taught the world to believe that the consumptive is a dreadful danger to the rest of us, and made his life miserable. An enormous amount of unnecessary disinfection has been done, and restrictions are placed around harmless cases. The few bacilli of the recognized cases are negligible in comparison with the myriads spread by the unrecognizable. Indeed the whole plan of the anti-tuberculosis crusade must now be reorganized.

The prevention of consumption is now boiled down to the means of keeping in good health, and the avoidance of causes of bad health. Prevention is no longer the avoidance of infection, for we are infected already. General sanitation becomes infinitely more important than ever, for we now see why an improvement of the water supply and reduction of the number of typhoids, also reduces the number of consumptives. Fewer people have their latent tuberculosis stimulated into activity by a mild typhoid infection, than before the water supply was improved. We frequently hear young, healthy men state that the simple life may be necessary for consumptives but is too slow for the healthy. If we can convince every one that he is tubercular and may become consumptive if he draws too greatly on his physiological bank account, the antituberculosis crusade will be doing effective work. There is no question, then, but that we now have a most effective weapon in our fight against alcoholic overindulgence, and every other intemperate habit. The very fact that nine people out of every ten are able to keep their tuberculosis latent, in spite of all the adversities of life, certainly warrants us in asserting that the tenth man could have done likewise. The outlook for prevention is much brighter, therefore, than ever before. Our students of tuberculosis must now go into the history of their cases in greater detail, and let us know exactly what broke down each man's tolerance.

The problem of racial immunity is still unsolved. The children and adults of the lower races which have never been brought into contact with tuberculosis, do not seem to be able to acquire tolerance by the method of the white baby. A tiny dose whose only effect on a civilized child is to immunize it against a bigger dose, will promptly destroy the savage child. When the adult savage is infected, the disease is virulent in the extreme. The only explanation so far given, is to the effect that the civilized races were once like the savage, but that the crowding together, which began with civilization, eliminated those who were unable to establish a tolerance, the fittest for survival being those who could take care of small doses. The process was very slow as people were scattered, and there were few chances of infection. The evolution proceeded by very slow steps. This explanation is unsatisfactory, as it fails to explain how some infants acquired this ability to tolerate the first dose, but it must suffice until we have a better one. The important point for our present purpose, is the fact that we now have the ability, and that we do get vaccinated and become tolerant. It is certainly a relief to know that we need no longer dread the consumptive, as we are all tubercular ourselves. It is a still greater relief to know that our concealed lesions are absolutely harmless, if we behave ourselves. Let us now place sanitation on a still higher pedestal, with a view of preventing every infection which might start our tuberculosis into activity.

The problem of place infection now appears in a much clearer light. The consump-

tive has not received his infection from any house or sleeping apartment, but acquired it in childhood from some living carrier. "Consumption houses" which have been noted for the large number of inmates stricken, must now be considered as causing these, by reducing one's health through faulty construction or poor ventilation. Of course no one wants to sleep with a consumptive, or in a bed recently occupied by one—nor do we approve of indiscriminate expectoration. All these things are evil in other ways even if we do not get infection thereby. Place infection has disappeared from the field of practical sanitation. The wonderful improvement in prisons is not due to the removal of infection from new prisoners, but to the greater care given to the individual in order to prevent his tuberculosis becoming active, and to cure him, should he develop symptoms. There is a possibility that an adult might receive from a tuberculous companion, too large a dose for his degree of immunity. In fact we know that miliary tuberculosis in children is almost invariably contracted from close contact with a consumptive in the advanced stages. Consequently the tubercular are dangerous, but only by close contact, such as sleeping in the same bed. Even that sometimes fails to transmit the disease. Otherwise the consumptive is harmless and an infection in adult life is exceedingly rare.

The return of tuberculin to favor is one of the amazing changes caused by the recent studies of tuberculosis. We are informed that more than half the sanatoriums of continental Europe are now using it in minute doses measured by the millionth of a milligram as a unit. They claim the cure is quicker, more lasting and with fewer relapses. The original mistake was in giving it in such large doses that it merely added to the toxemia of the patient and hastened his death. It is now claimed that the minute dose stimulates the production of antibodies. This seems to confirm the new theory that we all acquire immunity by minute and repeated infections in childhood. It may explain the remarkable results of carefully regulated exercises which release autogenous toxin, and it fully explains the cures following a change from a sedentary to an active occupation. Of course outdoor life must be given the main credit, but the cures seem quicker and more permanent than in the cases of men who give up all occupation. At least these are the claims made in England a few years ago. It does seem that we have made another step forward in the prevention and cure of tuberculosis, and a big step too. The lesson to be drawn, is that we must avoid doing anything to a man, sick or well, which will break down the defences he has been laboriously erecting all during his life against his own tuberculosis.

Football injuries seem to be almost as bad as ever. Up to November 23, there were ten killed and 27 seriously injured, as compared to 14 killed and 43 injured in 1910, and 14 killed and 67 injured in 1911. The reduction of casualties is being loudly proclaimed by enthusiasts as proof that the game is not as black as it is painted, and that its brutalities are really being eliminated. Only ten young promising men have been killed! How many of the 27 injured are ruined for life may never be known, but it is significant that three deaths this year have resulted from the injuries of last year. Hundreds of thousands of spectators have been amused at the expense of ten lives. Ten young

men were sacrificed to please a cheering crowd, and yet we loath the bull-fight as brutal. It is certainly evident that the game needs more reforming. Only ten deaths! True sport is never fatal to anyone, but beneficial to all.

The mystery of seasickness seems to be as far from explanation as ever, in spite of innumerable theories. Dr. E. Schepelmann, a former physician in the North German Lloyd service, has quite recently published a very respectable monograph on the subject (*die See Krankheit,* Walter Rothschild, Berlin and Leipzig), and with characteristic German thoroughness. The work is one of the very few contributions to medicine from the mercantile marine, and would be notable for that fact alone. His bibliography is quite extensive as the literature is enormous. Unfortunately he has felt moved to add another theory which, though quite complicated, is considered by experts to be as unsatisfactory as all its predecessors. Those who contend that it is a reflex acting through the eyes are not able to explain why the blind are made ill, and the favorite theory of a disturbance of the semi-circular canals is equally objectionable because of the failure of special devices for retaining a horizontal position. The other theories range from cerebral concussion to mechanical disturbance of abdominal viscera, due to up and down motions. An amazingly large number of remedies have been proposed, mostly of dangerous nervines to stimulate or depress and their occasional success has led others to believe the cause purely psychic and to try suggestion with equal success. The cures by any drug seem to be about as numerous as those who get well spontaneously. Indeed, nothing is any more sensible than Erasmus Darwin's suggestion to become accustomed to motion by swinging violently in a hammock or swing a certain period every day for a week or so before embarkations. Brandy to the point of intoxication works as well as anything else, but upon sobering up, the seasickness returns to complicate the Katzenjammer. For awhile yet, the symptom will be considered something of a joke, but as it may contribute to a fatal ending for an invalid whose nutrition is important, the need of temporary relief may be vital. It has recently been observed that a person immersed in a salt water bath on a badly rolling ship, loses all sense of the ship's motion. The boat seems to be steady and only the water to move. Perhaps in desperate cases such a bath might give relief for some hours and perhaps effect a cure. We suggest it to physicians who make ocean voyages. Everything else fails.

Dr. Wiley's Successor. For some time past conjecture has been rife concerning the probable successor of Dr. Wiley. Dr. Doolittle has been performing the duties of the position temporarily since Dr. Wiley's resignation with a degree of activity and thoroughness that has not only belied the unkind prophesies the punsters have been prone to make on his name, but has led to the rather general expectation that his appointment would sooner or later be made permanent. Some little surprise was felt, therefore, when the announcement was given out that the President had appointed Dr. Carl L. Alsberg as chief of the Bureau of Chemistry in the Department of Agriculture. Dr. Alsberg was a comparatively unknown man to the people generally, but on

investigation it soon become evident that more than ordinary care had been exercised in selecting him for the position. To be sure, he had had little experience in executive or administrative work, but as a gentleman and a chemist his qualifications were all that could be asked for. Thus, according to a writer in the *American Food Journal* (Dec., 1912) Dr. Carl Lucas Alsberg is a second generation German, a class the members of which have done so much not only to develop the United States but to increase the respect in which other Americans held the sturdy and efficient immigrants from the German states. He was born in New York a little more than thirty-five years ago. In that city he received the broad foundation for a magnificent education—an education that makes him one of the most distinguished men in the service of the government, even without taking into account his manifold scholarly achievements.

There are men competent to judge who count him among the foremost chemists of the country at least, if not in the world. He stands well with the chemical societies of the country and the world that have special opportunities for learning the scientific calibre of their members.

CARL LUCAS ALSBERG, A. M., M. D.

Degrees do not mean everything but when they are conferred by such an educational institution as Columbia, who gave Alsberg his *master of arts,* and the College of Physicians and Surgeons of New York, which made him a *doctor of medicine,* they indicate that the recipient has a good deal that could only be attained by hard work. Add to these additional training in chemistry and physiological chemistry in German universities, and their possessor,

while head of the Bureau of Chemistry, is not likely when called to the witness stand to have any difficulty in qualifying as an expert in chemistry, physiological chemistry, pharmacology or just plain medicine.

There need be no fears entertained that Dr. Alsberg will fail to "make good." He has the knowledge, the training, and the personal character to enable him to master the details of his new office, and he may be confidently expected to make an earnest, capable and trustworthy official, one who will comprehend the obligations due the American people, and will fearlessly do his duty at no matter what cost in time, effort or personal sacrifice. His manner since his appointment has made countless friends, for he has shown a becoming desire and intention to familiarize himself with the problems he has to solve before expressing himself. Dr. Alsberg deserves the whole souled support of every intelligent person who has sense enough to appreciate the essential difficulties of his position, and kindness enough to want to see him master them.

Dr. Wiley's attitude when his attention was called to Dr. Alsberg's appointment was not calculated to increase the height of the pedestal he has so long occupied in the minds of his worshippers. As a matter of fact, his unkind insinuation that Dr. Alsberg was appointed at the behest of corrupt interests, and was in consequence to be expected to serve these rather than the American people, was not only in extremely bad taste, but entirely without foundation. The drug and pharmaceutical trade, to tell the truth as it is, did not know any more about Dr. Alsberg's selection for the position of Chief Chemist than they did about the man himself. To the so-called interests he was an unknown quantity. But President Taft was seeking a man of scholarly and technical ability and sought counsel from such men as these: Dr. M. A. Rosanoff, Clark University, Worcester, Mass.; Prof. Lyman Brumbaugh Starkey, Professor of Physiology, University of Southern California; Director Arthur B. Lamb, Havemeyer Chemical Laboratory, New York University; Col. John Bogart, Consulting Engineer, New York City; Dr. David Starr Jordan, President, Leland Stanford Junior University; George L. Struter, Professor of Anatomy, University of Michigan; Albert M. Barrett, Professor of Mental and Nervous Diseases in the University of Michigan, and Director of the State Psychopathic Hospital; William H. Nichols, President, Eighth International Congress of Applied Chemistry; Marston Taylor Bogert, President, Section IV, Organic Chemistry, Eighth International Congress of Applied Chemistry; Wilder D. Bancroft, President, Section IX, Proto-chemistry, Eighth International Congress of Applied Chemistry; Erwin F. Smith, in charge, Laboratory of Plant Pathology, Bureau of Plant Industry, Department of Agriculture; P. A. Levene, Member of the Rockefeller Institute of Medical Research, Chief of the Department of Chemistry; S. F. Acres, Associate Professor of Chemistry, Johns Hopkins University; Edwin R. Seligman, Columbia University; Herman M. Adler, Pathologist at the Danvers State Hospital, Hathorne, Mass.; Felix Adler, Leader, Society for Ethical Culture of New York; Edwin G. Conklin, Professor of Biology, Princeton University; Geo. A. Hulett, Professor of Physical Chemistry, Princeton University.

These men endorsed Dr. Alsberg and advised his appointment as Chief of the Bureau of Chemistry! Can any one believe that they were acting in behalf of the "corrupt interests"? Certainly not, and Dr. Wiley stultified himself and the good he has done when with the same breath he spoke of Dr. Alsberg's ability as a chemist he also stated that the corrupt and dishonest would rejoice at his appointment. It was mean, unfair and as rank a bit of misbranding as Dr. Wiley ever exposed.

When Dr. Wiley was attacked last year, we felt, as doubtless did a great many, that he was a victim of a conspiracy. Here was a man who had had the courage of his convictions, who had fought for what he knew was right, and cared nothing for himself but everything for his principles. We did not hesitate, therefore, to state that we were thoroughly appreciative of the work Dr. Wiley had done; that we deprecated the very evident attempt to discredit clean, honest, fruitful effort, and that to treat a faithful public servant in such a way was far from our conception of a "square deal." Further than this, we referred to Dr. Wiley's untiring efforts which had contributed so materially to the passage of the Pure Food and Drug Law; agreeing that no little part of the credit for what had been accomplished belonged to him; and expressing the hope that as the years went on, the public would realize how much it owed to his zeal and fidelity. This we mention simply to show that we bear no animosity to Dr. Wiley, but, on the contrary, have held him in deep respect and esteem, and have never failed to recognize his part in a movement that has such an important bearing on the health of the people. In all kindliness, therefore, we hope that Dr. Wiley will not allow his personal hurt to warp his sense of fairness. He has been treated shabbily and has ample reason for feeling pessimistic. But he is not going to correct things by incubating his wrongs or by nursing his wrath. The world has little interest in personal grievances and Dr. Wiley has too great opportunities for helping along a great movement and doing real constructive work to waste any time or effort in keeping his personal injuries before the public. Sooner or later right will prevail but Dr. Wiley will neither hasten the day nor increase the number of his admirers by attacking the honorable men who constitute the Referee Board or by casting aspersions on the integrity and intent of the man who has succeeded him. Nothing wins quicker or more genuine commendation from decent people in general than the spirit of fair play, and there is no better way of displaying this admirable virtue than to give every man who has a duty to perform, the benefit of the doubt; in other words to assume that his motives are as honorable and clean as our own would be under similar circumstances and that success is as dear to him as it would be to us. Dr. Alsberg is a new man. Bravely yet modestly he has entered upon his office and common decency requires that he be allowed to start his labors without the handicap of hasty and unwarranted criticism. Any other course on the part of those who are interested in his work leaves room for only one inquiry—Why?

The Health Commissioner of the State of New York is a very important official and though little is heard of him from day to day in the newspapers, much depends on the efficiency and fidelity with which he performs his duties. One of the unfortunate things about the office is that it is political and each incumbent can hope to fill it only as long as the Governor who appoints him. This is wrong for it tends to bring into the position at all too frequent intervals, men who are inexperienced and untried; and although New York State has been favored by the appointment usually of a physician of great ability and high character, no sooner has he become well qualified to render satisfactory service, than the exigencies of politics have enforced his official decapitation and placed a new untrained man in

the position. The evils of this system were never more evident than at the present time as the term of Dr. Eugene H. Porter ends. Few men who have filled this great and responsible position have ever rendered more conspicuous service to the people than Dr. Porter has during the period of his incumbency. Confronted constantly by ignorance, indifference and active antagonism, Dr. Porter has never faltered, but gone on doing his duty as he saw it and making the most of the means and measures at his command. How efficient and successful he has been is pretty tangibly shown by the fact that New York State's death rate for 1912, which was 14.6 per thousand of population, was the lowest ever known, and a saving of more than 5,000 lives over 1911. The rate for 1908 was 16.3 and that for 1904, 18. The highest mortality was in the maritime district, and the lowest in the southern tier.

During 1912 tuberculosis caused 13,600 deaths, a decrease over previous years, the urban mortality from this disease being 154 and the rural 119 per 100,000 population. The number of cases of diphtheria was the smallest on record. Typhoid fever caused 1,135 deaths, scarlet fever 800, measles 1,000, and smallpox 3, 2 of which were in New York City.

It is a matter of regret, therefore, that the State should have to lose the services of a man who has qualified himself as Dr. Porter has and who has such a broad and comprehensive grasp of the health problems throughout the State. There are a few who will criticise and condemn the outgoing Commissioner. The best man who ever lived was a victim of the same kind of people. No man who does his work fearlessly and faithfully can escape the ill feeling and hatred of a certain proportion of his fellow men. The penalty of duty zealously performed has ever been the attacks of a certain class. But when one can point to as clean and successful record as Dr. Porter can the shafts and stings of the jealous, envious or disgruntled fade into insignificance.

For what he has done with the resources at his command Dr. Porter deserves the hearty approbation of his colleagues and the sincere gratitude of the principal beneficiaries, the people at large. It is a pity that the citizens of New York cannot continue to profit from his knowledge, training and experience. Perhaps some day the people will realize that officials like Dr. Porter are community assets, and will devise some scheme whereby their services can be retained as long as they are needed. Until they do we will go on wasting good faithful servants—and losing valuable time in the solution of many difficult problems—by allowing appointments to these important offices to remain at the caprice of the politicians—commodities for the payment of political debts. The fact that the system has given us a Commissioner as capable as Dr. Porter has no significance, for having served his political purpose, the system has no further interest in him. No consideration of special ability or experience will save him. If he should be reappointed it will be his political utility and not his scientific or administrative ability that will bring this to pass. Consequently the appointment of a capable man is always accidental, and so far as the system is concerned is quite as apt to be otherwise. The pernicious character therefore of such a system is always apparent but it receives especial emphasis when it enforces the retirement of an official as efficient and successful as Dr. Porter has been.

EUGENE H. PORTER, M. D.,
New York State Commissioner of Health.

MEN AND THINGS.

Medical Experiences in the Balkan War[1].—While to the great majority of those who live in America, the war in the Balkans is quite unreal, we occasionally get word from correspondents or returning travellers which leaves no doubt that to a great many the existing conditions have all the reality of warfare in its most fearful and terrifying phases. As in every war of modern time the medical service has undoubtedly been put to a severe test, and according to the *London Lancet* (Nov. 23, 1912) interesting information is forthcoming as to the work which is being accomplished by the surgeons attached to the contingents of the Red Cross Society and the Knights of Malta in the Balkan war. From this country there have gone to Bulgaria, to Montenegro, and to Servia 50 surgeons, who are in charge of about 2,000 beds. One of them, Dr. Fedlicka, states that he has had an opportunity of observing 670 cases of severe wounds in Servian soldiers, and expresses his surprise at the rapidity of healing and the aseptic condition of even the most dangerous injuries. Men shot through the body by bullets which penetrated the liver, the lung, the spleen, and the intestines recovered after a fortnight or so without much evidence of ultimate harm. The modern bullet is rendered aseptic by the enormous heat of the burning powder, and it hardly ever shatters long bones, so that there were very few amputations—only two in 670 cases—and only 20 instances in which plaster of Paris bandages were necessary. A large number of fractures of the bones at the base of the nose were seen in Turkish soldiers who were not accustomed to use rifles, and in consequence of the recoil received blows in the face from the stock when the weapons were fired. Dr. von Oettingen says that he has found that the use of masticol, a resinous, very sticky substance, for the first treatment of wounds gave him excellent results, as it hindered the entrance of micro-organisms and prevented their multiplication. The forces of the Slavonic nations carry in their outfit a first-aid package arranged after the Norwegian or Russian pattern, and about 95% of the wounded were found to have made use of this package. The severest wounds were those inflicted by the bayonet, and they also healed with more difficulty than bullet wounds. Shrapnel and other projectiles fired from heavy guns did great damage, mostly killing the victims. The sanitary precautions in the allied armies seem to be excellent, but not so on the Turkish side. But in Montenegro, where there is a sad lack of all medical requisites for the war, the Austrian Red Cross Society has undertaken an immense amount of work. As a rule the wounded recover sufficiently to be able to return to the front after a fortnight, but those with wounds of the abdomen or skull are not in this category. Up to now it has been possible to prevent any serious outbreak of cholera, plague, or smallpox amongst the prisoners, captured by the Balkan armies.

[1] Nov. 23, 1912.

It is not in a man's creed but in his deeds, not in his knowledge but in his wisdom, not in his power, but in his sympathy, that there lies the essence of what is good and what will last in human life.

F. YORKE POWELL.

The Discovery of Chloroform.— It has long been known that there still remain some gaps in the history of the discovery of chloroform and the introduction of anesthesia, says an editorial writer in *Medical Press and Circular*, (Jan. 1, 1913). This fact is once more brought to the front by the appeal that has been issued for funds to erect a memorial to the late Mr. David Waldie in his native town of Linlithgrow in celebration of the centenary of his birth. It is claimed that Waldie, who was born in 1813, brought to the notice of Sir James Simpson the anesthetic properties of chloroform. It is said that Waldie, after numerous experiments, suggested to Professor Simpson that he should use chloroform as an anesthetic, and undertook to prepare some for him. After his first experiment, Simpson wrote as follows to Waldie: "I am sure you will be delighted to see part of the good results of our hasty conversation. I had the chloroform for several days in the house before trying it, as, after seeing it such a heavy unvolatile-like substance, I despaired of it and went on dreaming of other things. The first night we took it, Dr. Duncan, Dr. Keith, and I all tried it simultaneously, and were all under the

table in a minute or two." That Waldie played some part in the introduction of chloroform there seems no doubt, but there is some controversy over the question whether it was an important part. In any case, the proposed memorial is a very modest one, the intention being to place a bronze tablet suitably inscribed in the house in which he lived.

Give what you have to some one, it may be better than you dare to think.

HENRY WADSWORTH LONGFELLOW.

Illegitimate Children in France.[1]— According to the latest statistics, there are in France, year in, year out, 75,000 illegitimate births, of which 15,000 were for Paris alone. Hence 11 per cent of the annual births are outside the marriage union. On the other hand, the mortality of illegitimate children is double, at the same age, that of the others, while each year 600 infanticides are committed and 150 children abandoned or left to exposure.

This deplorable condition of things has stimulated an honorable member of the Senate, M. Rivet, to present a bill abrogating two articles of the Civil Code which refuse to recognise the rights of an illegitimate child to the protection of its father, declared irresponsible. Under those circumstances the mother has no redress, as the law does not allow her to make any claim on her seducer, who generally abandons her, leaving her to bear the burden of her fault alone.

Similar bills had been presented in years gone by to the French Parliament, but were always read out. However, this time, through the persuasive eloquence of M. Rivet, the Senate passed the first reading, and there is every hope that the bill will in due time receive legal sanction.

Murder Will Out.— Every day some strange, unusual event occurs to emphasize anew the triteness of the old saying that "truth is stranger that fiction." One of the latest incidents of this character concerns a woman belonging to the unfortunate class who was found strangled in a retired spot of the Bois de Boulogne. The doctor charged with the autopsy remarked, besides the ordinary signs of strangulation, a piece of skin held firmly between the teeth of the victim. He laid it aside carefully wondering where it had come from.

The following day, according to a correspondent in the *Medical Press and Circular* (Dec. 18, 1912) commotion was excited in a fashionable quarter of Paris by the suicide of a gentleman, over 50 years of age, of noble extraction. A note in the handwriting of the suicide was left in evidence on the table stating that he committed suicide on November 2nd. This unusual declaration led the family doctor, who was called in, to carefully examine the body, and he came to the conclusion that the suicide took place on November 3rd and not the previous day as pretended. Why this false statement? But the inquiry reserved other surprises.

More minute examination of the body revealed the existence of a wound of curious form on the penis; a part of the prepuce was missing! The extraordinary discovery was brought to the attention of the police authorities, and the following day the Press mentioned the fact in covered terms. When the doctor who had made the autopsy of the woman read the report, he remembered the piece of skin he had found in the mouth of the corpse and brought it to the police who found that it exactly adapted itself to the solution of continuity found on the genital organ of the count; thus, the whole mystery was cleared up. The count, by anticipating his suicide, wanted to create a posthumous alibi, so as to le ve this world with his reputation intact, but it was evident that he was the assassin. The fact was still further confirmed by a witness, who stated that the count was in the habit of frequenting a certain class of girls in the Bois de Boulogne for the purpose of practising unnatural acts.

Here is an instance of how legal medicine can reveal facts which would easily have passed the notice of a superficial observer, and seem incredible, if they were not founded on positive evidence.

May we so live, we dread not here to die; So die, we dread not afterward to live.

PHILIP JAMES BAILEY.

[1] *Medical Press and Circular.*

Sex Emotions in Their Relation to Colors and Sounds.— A percentage of human beings and birds have in common an inherited emotional factor which finds its expression in musical sounds, says George Henry Taylor, L. R. C. S., Edin. in a communication to the *Lancet* (Jan. 4, 1913). In bird life the musician is a male, excepting the rare cases where a caged female bird exhibits the emotion of song. The inherited emotion in each variety of singing bird is expressed in a sequence of notes peculiar to itself, although the quality of note may vary a little in different birds. By the selective breeding of caged birds the quality of note can be improved. For example, by mating finches of different varieties the offspring acquire a song which is a blend of the notes in the song of the male bird in each variety. Such birds are not fertile. No doubt the female bird admires with a keen appreciation the colour or song of her mate, but it is doubtful whether the colour or song of a male bird is a delight to others of his sex. A bird in a cage when singing appears to be in a state of rapture, and does not then give an observer the suggestion of intelligence as it does when, with head aslant, it is alert and observant.

"The period of sexual activity in singing birds alternates with a longer period of sexual calm, when male and female are associated in what is practically an asexual state. The sex song, therefore, of a singing bird is an emotional expression on the part of the male, sung under similar conditions season after season. There is an absence of the persistent sex-brooding of the human male and female, which extends throughout the sexual period of their life. The environment of the bird may change, but so slowly that it is practically the same year after year. The environment of the human unit, on the other hand, is comparatively unstable. The human male also appeals to the female through the emotions of song and colour, though he is more promiscuous in his loves than is the singing bird. The non-creative musical male interprets the appeal of musical sounds according to his degree of emotional appreciation and expression. The development of mind in human beings places male and female frequently on the same intellectual plane, and association on that plane may simulate a feminine element in the male, or a male element in the female, and occasionally the latter creates new manifestations of emotion in colour and music. But as a rule the female is appreciative of the emotion of music, and not creative of music itself. It is further to be noted that in birds colour and music are usually apart. The bird of brilliant plumage is nearly always songless, whilst the smaller singing bird is more frequently associated with sombre feathers. The description I have given in former notes of the expression of emotion in a colour-blind person, shown in his face and voice, was drawn from an extensive experience of men who, from a colour and musical standard, might be termed primitive persons. (The *Lancet*, March 9th, 1912, p. 683). A much less extensive experience apart from this class suggests to me that when a person is blind to red and green, and also indifferent to musical sounds, the condition I then described in regard to the voice is accentuated. I infer, therefore, that when a person with a keen appreciation of musical sounds is blind to red and green, there still may be a degree of colour recognition through sound. When a person blind to red and green is in contrast to a person with a keen colour sense, immediately prior to examination by Holmgren's wools, the condition common to each mind is a degree of expectancy. The face and attitude of the red green blind is suggestive of a person who is listening; the face and attitude in the other of a person who is watching. In my small experience of musicians I recognise two types. A colour type which is bright and joyous to instance Mozart, and a type which is introspective and gloomy with a comparative indifference to external objects, of which Beethoven may be taken as an example."

To-day is your day and mine, the only day we have; the day in which we play our part; what our part may signify in the great world we may not understand; but we are here to play it, and now is our time.

DAVID STARR JORDAN.

A thought, good or evil, an act, in time a habit, so runs life's law; what you live in your thought-world, that sooner or later you will find objectified in your life.

RALPH WALDO TRINE.

ORIGINAL ARTICLES.

DE SENECTUTE.[1]

BY

H. SEYMOUR HOUGHTON, M. D.,
New York City.

On a recent evening at the Academy of Medicine a paper was read on "Geriatrics" which the reader, Dr. Nascher, explained was a name given to cover diseases of old age, the opposite of Pediatrics, for diseases of infancy and childhood. This is the final meeting of this Society for the year and soon many of us will be putting to serious thought the question of how to devote to holiday and recuperative purposes the sixty consecutive days which belong to us, to make up, as Dr. Crandall once explained to a patient who said he never took a vacation, for the fifty-two Sundays and eight holidays which the doctor never gets. It is because of the approach of summer, with its pleasing call to the woods, the camp and streams, to the ocean and rivers, to our little farms or country places, that I do not want to inflict upon you a formal paper on a medical subject of a truly scientific nature, but rather preach a little on the subject of old age from a point of view rather at variance with what would be acceptable from the rostrum of the Academy. Our colleague, Dr. Painter, is responsible for the following rather irreverent verselet:

"Kings Solomon and David led very merry lives,
The one with his concubines, the other with his wives.
But as old age crept on apace, they began to feel some qualms,
So Solomon wrote the proverbs, and David wrote the Psalms."

[1] Read before the West End Medical Society.

It is the endlessness, the hopeless continuity of a doctor's work, the day in and day out, with a night out thrown in to punctuate the fact,—if not actually busy, the rankling expectation of that truly astral bell, the telephone, which grieves the soul of the practitioner of medicine. The ordinary business man thinks he knows our sorrows, and says he is sorry for us, but I seriously doubt if he has the real keen appreciation of the actualities that we who are in the ranks are so familiar with. It is this type of a merry life that brings its occasional qualm, and makes us wonder if we can keep it up until something cracks.

What is old age for a doctor? As a man he may be old at sixty or young at seventy or even eighty-two, as Dr. Jacobi, but as a doctor he is old simply at the time modern fashion may decree it, and I think at the present time fashion says that a doctor is old at a period in his life much earlier than was so considered by the past generation. Sometimes it seems as if old, experienced Dr. Jones would have to give way to the young progressive Dr. Smith, and the very fact of the existence of young progressive Dr. Smith forces old experienced Dr. Jones to sit up and take notice that his younger brother, unlike in the old days, is to be reckoned with. I can understand the feeling the parent has watching with me the querulous touch, the double pair of eyeglasses, the slow feeling his way through the mastoid of his child by one of our distinguished aural surgeons who is over seventy, as compared with the master hand of a Whiting or a McKernon. I cannot blame him for preferring the clear eye and brain of fewer years. A doctor is old at just that period of his life when his patients begin to think that a man younger than he can do his work

better. They love and honor him still, but when the critical time comes, he may be left and the other taken, and woe to him who has blinded himself to this possibility, and failed to realize the inexorable law of human nature and of fashion, and woe to him who has not anticipated just such a crisis and prepared himself to meet it. Notice how the United States Government goes about it in one of the most important branches of its service. Arbitrarily it informs its Army and its Navy officers that on their sixty-second birthday they are old, no longer fitted to follow their careers. On the day they become sixty-two years of age they step from their tents or the bridge and become private citizens, old men. Our patients are more polite about it, they say nothing, and the doctor who has become old sits and wonders what has happened. Sits and wonders? Not so if he has prepared himself, if he has watched the signs of the times, seen something, whether it be a great white light or a little cloud no bigger than a man's hand. Let us suppose, for example, that sixty-two is the age limit for a physician, the age limit for him as a professional man, the time that an Osler might want Kilmer to get out his apparatus for gas and ether. That would leave him eight years according to Biblical authority, considerably less by insurance tables, for getting out of the harness and having one grand long vacation, the opportunity to spend what years remained in doing exactly as he pleased.

The other evening four of us sat around a table and in comparing notes discovered we were all born in 1862, the poetry of which consisted in the fact that if we were in the government service, but twelve years remained to carry on our work. 1900 seems only a little while ago, and 1924 is no further distant in the future, only it seems longer. Then of those eight years—I have no delusions as to the possibilities contained therein, I can picture the stiff knees, the bent back, the macaroni sticks which have supplanted the arteries. I know the handicaps which are likely to put vinegar in the general sweetness of a life's work completed, but need such things take away the best feature of an early happiness, its anticipation? Is it not true that about one-half of happiness in this world consists in the anticipation of it? What man in this room when he rolls in under the covers at night does not think of the big fish he is going to haul in, of the little garden he is to tend, of the swish of water and the joyous flaps of the sails?

So never mind what happens, we have already had half the pleasure if perchance the realization fails us in the end, if actually when the time comes to lay aside the strain we find ourselves unable to carry out the day dreams of younger days.

It has always seemed to me one of the marks of genius to be able to step off the stage of glory at its zenith, to gracefully make one's bow while the applause is still heard, and one of the saddest things is the effort to continue that glory or renew the applause.

How infinitely better to be forgotten gracefully than be remembered with scorn or pity! But just as one must prepare for the beginning of life's work, just so must he prepare for its close—to simply stop and say "Tomorrow I go hence," is impossible, such a change of life would be as unphysiological as the operative change of life would be in a woman. The thirty or forty years of daily routine tends to form habits, and like the old dog, new tricks are

difficult to learn. There is where the far sighted man has made his little preparation—gotten ready when the time has come to step right into the new harness and take the home-turn. The getting ready for this species of menopause involves two absolute essentials; one of them being enough of an income to live upon after the office door is closed, the other the possession of an incentive, let us call it a hobby, to occupy the mind with as great or even greater an interest than the work one is handing over to others. The financial part of it may spoil the whole programme, for it is almost a byword among the people at large that a medical man's ability to lay by for rainy days is about the worst feature of his otherwise generous supply of good qualities, and the reasons for this are abundant even if it be more or less true. I might specify as among these reasons the necessity of living on a scale which requires a fairly good income, and the further notorious reason that so many people regard the doctor as a man who scorns to receive money for his services to suffering humanity, and who might feel offended if the offer were made, hence they think it safer not to make the offer. Doctors are apt to have nice little families also, girls and boys, who are at school and college, and need pretty clothes and are right in the middle of the social whirl, and perhaps the Frau doctor herself is quite content to let matters go on in the smooth even tenor of their ways and might be inclined to exercise her right of suffrage to vote against any programme which would involve a shifting of the scenes. Here is where the idea of long sighted preparation comes in, the education of one's household that there is a limit to a professional man's ability to keep things going at the same rate and on the same basis as existed when he is at his best in years and strength. A hard hearted and selfish household it would be which would exact from its breadwinner his maximum until the end.

It is part of the very trouble with things that the doctor himself wants to see his wife, his sons and his daughters have the best of everything, and his happiness, his joy in life is his ability to maintain their standard and yet no man with his family dependent upon him, can do otherwise than recognize the order of nature that the time will come when his sons and his daughters will have homes of their own, and have become independent component parts of the world's makeup, and that ultimately he and she will be left alone again to look at each other across the table and wonder what they are going to do now, and when that moment comes it is the psychological one. If he has, with long foresight, put aside that from which he can now live, without the hours of confinement in his office, without being the slave of that monopolistic corporation, the telephone company, without the necessity of trying to think daily of some new remedy for that gas forming bacillus, old Mrs. Welland Strong, and if, with all he has had to meet and contend against, he has managed to lay aside a fund that will now do a little work for him, then will come the second and great commandment, his occupation, his hobby, for unless one has a hobby, he is in the words of old Kaposi, of Vienna, a "verlorener mensch." He would better stay on at his work, stay on as did two of our honored confreres, whom I mention with all reverence, J. Lewis Smith, and Janeway, both of whom made a lasting impression on me. The last time I saw either of them was to see poor old Dr. Smith

being helped into the house from that old buggy he went about in, and a few months before his death, holding on to Dr. Janeway, for fear he would fall down stairs from the sick room of the patient. Their hobby was medicine, and they were consistent to the last.

Not all of us are gifted like Weir Mitchell who is spending his declining years in literature, in works which will probably make his name more enduring than anything he did as a physician, nor like old Thomas Addis Emmett. But Weir Mitchell has his hobby and Emmett has his, and we all can have our own. Fortune might arrange it for us that the little farm up in the hills of Connecticut or down in Maryland by the shores of the Chesapeake, little farms where the chickens and ducks and the cows and the gardens, with the open air and sunlight could wake up in its various coloring, the picture of a hobby. And those of us who love the sea and its rivers, either the great steamship to carry us to lands of our dreams, or the trim little yacht, listing gently to leeward in the evening breeze, with our hand on the tiller, the other holding the pipe, and eyes looking out at the evening of day and of life with all the happiness and contentment that comes from knowing that our work is done.

301 W. 88th St.

Many, if not most, of the cases of shoulder pain variously diagnosed as circumflex neuritis, rheumatism, etc., are instances of subacromial or subcoracoid bursitis. With involvement of the former bursa there is usually tenderness just beyond the acromion, usually somewhat anteriorly; in the latter there is marked tenderness just external to the coracoid tip. Pain on rotation of the arm may be present in either; it is most constant in subcoracoid bursitis.—*Amer. Jour. of Surgery.*

OBSERVATIONS ON AN INTERESTING CASE OF RHEUMATOID ARTHRITIS.[1]

BY

ORRIN S. WIGHTMAN, B. A., M. D.,

Clinical Professor of Medicine, N. Y. Polyclinic; Visiting Physician, Workhouse Hospital; Ass't. Visiting Physician, City Hospital.

Rheumatoid arthritis has been described as an inflammatory joint disease—acute, sub-acute, or chronic—which under certain conditions is apparently of an infectious nature and origin, and under other conditions of unknown cause.

Its slow and insidious progress often masks its real seriousness, and cases are frequently in a condition of helplessness, before the real danger is appreciated.,

The case which suggested this paper, is most instructive, and rather than speculate upon the etiology of which we know so little we will endeavor to draw conclusions from facts.

The patient, Mrs. H——, a married woman of 27 years of age, with no children, has a family history of rheumatism on both sides. As a child she had scarlet fever, and later adenoids were removed, otherwise she has been perfectly healthy.

In April, 1910, her right knee would occasionally become hot and painful, and later became swollen. The greatest annoyance was in the weakness she experienced in it while, or after walking. It would "give out" as she expressed it, and after a while she developed a slight limp.

At the suggestion of friends, she tried osteopathy, taking a full course of treatment, but manipulation seemed to make it worse, and the family becoming alarmed insisted on her seeing a surgeon. She went

[1] Read before the Clinical Society of the New York Polyclinic Medical School and Hospital, February 5th, 1912.

to a distinguished orthopedic man who suspected that fluid might be present. He aspirated without result. Rather surprised he then used galvanic needles in the joint. This after several weeks merely aggravated conditions, and becoming skeptical as to the true state of affairs he had X-ray pictures taken, and became convinced that neither tuberculosis, nor malignancy was present, but placed the joint in a metal brace from hip to ankle, completely immobilizing the knee. After two months of this treatment, the orthopedic surgeon sent the woman to a physician, who at that time having no other joints to guide him, pronounced it gout and promptly started treatment accordingly.

The patient was placed upon a restricted diet, and given alkalis, salicylates and iodides. She did not seem to improve, and was advised to go South, which she did, but not until after she had had two rigorous months of cold, changeable, winter weather in New York. By this time the inflammatory changes had involved the other knee, and both shoulders, which were very swollen and painful. After the baths at Hot Springs, Virginia, she seemed to get slight relief from the pain but was losing weight and appetite. She then went further south to Florida and becoming alarmed went out to Hot Springs, Arkansas.

Another course of baths was taken, a restricted diet assumed, and large doses of salicylates and iodides given. She returned to New York in May, 1911, weighing 85 pounds, having lost 45 pounds, and was a bedridden invalid.

On our first examination of the patient we found extreme emaciation, a slight diarrhea alternating with constipation: her elbows, shoulders, knees, ankles, wrists, hands and feet and even the sterno-clavicular articulations were tender and sore. Some joints were very much reddened, but the hip joints seemed to have escaped the invasion. The hands were particularly interesting—the small joints, especially the carpophalangeal in the index fingers of both hands, were enlarged and showed outward deflection. The distal ends of the phalanges had exostoses, and flexion of the hands and fingers was impossible. Her temperature at this time was 101.3 and her pulse 124. Her heart showed a mitral insufficiency, with a haemic murmur carried well into the vessels of the neck. Her blood pressure was 90 m/m.

A blood examination showed 6,000 white cells, with a distribution of 40% lymphocytes, and 46% polynuclear, 4% esinophiles, Hb. 65% by Talquist. No malarial organisms found. The urine was 1.010 sp. gv. No albumin or sugar and urea .8 of 1%.

Our treatment to be rational had to aim at three things: *First,* rest; *second,* nutrition; *third,* removal if possible of the products of metabolism which were causing the chronic toxemia. A most competent nurse was secured at once, and in this connection, I may say that the cooperation, tact, and forbearance of an intelligent and resourceful woman, is absolutely necessary in these cases, if we are to hope for any results. The family are well disposed but not tireless, they are sympathetic under all conditions, which is not always desirable, and more than that, order and routine can rarely be obtained, other than through the authority of a trained nurse.

We were dealing with a disease, which though acute and unusually sudden in this case, had become sub-acute and chronic. The case, moreover, especially exemplified

Fig. 1. Mrs. F. C. (Gout of Hand).

Showing the spatula shaped shadow of synovial infiltration with little true joint involvement and no periostitis.

Fig. 2. Case Mrs. T. H. (Osteo-Arthritis) (Rheumatoid Arthritis).

Showing the progressive enlargement of bony growth along the shaft of the phalanges of the hand. A true periostitis. Also the ankylosis of the distal small joints.

how in our efforts to prevent by medication its further progress, we all too often incapacitate our strongest ally, viz.: the nutrition.

The picture at this time was of an exhausted woman, reduced in weight to 85 pounds, with a secondary anemia and a hemic murmur, constipation alternating with diarrhea, all of her joints involved, and marked deformities in the hands. In brief, a helpless invalid.

Her temperature ranged at this time from 101-102 deg. at night, with severe sweats necessitating the change of the night gown twice during the night. She would be aroused from sound sleep by a sudden, involuntary twitching of the legs, and at other times was kept awake by a severe basilar headache. At this stage we were at times in grave doubt as to whether we were dealing with a stage of a rheumatism, pure and simple. The doubt was an honest one, but was soon cleared up by the progress of the disease.

The bowels were promptly cleaned out with calomel and daily saline enemas: sponging with tepid water and alcohol every four hours. The affected joints were protected by dressings against temperature changes, and pillowed in cotton. Care was exercised to avoid jarring the bed, and dry heat by electrical pads alternating with hot moist local packs were applied at frequent intervals.

Great benefit was derived in reducing the night sweats by local and general application of hot, wet salt. The salt was rubbed thoroughly over the entire body and allowed to remain there for half an hour and then either removed by tepid sponging or the patient was placed in the tub.

Realizing the uselessness of the salicylates and iodides they were promptly discontinued.

In consultation with Dr. Hayes, we bent every effort to improve the nutrition, choosing foods having the highest caloric value and carefully tabulating them under caloric units.

Under this plan we found she could take from 7'800 to 12'000 calories per week and this is a form most easily digested. Our main effort, was *Food,* but *Food* in terms of absorption.

We must bear in mind, that among other things she was suffering from an over zeal of specific drug treatment, that she had just returned from 32 baths at Hot Springs, Arkansas, with her digestive tract entirely incapacitated, and an acute gastritis so severe she could not retain food.

On June 25th, 1911, her weight was 90½ pounds, a gain of 5½ pounds in 6 weeks. We found that even now 12'000 calories per week gave signs of overfeeding, and we kept to the lower figures. By the middle of August her temperature had come to normal, but the pulse continued high, and was affected on the slightest exciting cause. Even with strangers excluded, it continued between 90 and 100. With the abeyance of the temperature, the nervous phenomena subsided. She had fewer periods of depression, less twitching in her sleep, and the occipital headache did not keep her awake at night.

As the acute inflammation in the joints subsided, the therapeutic lamp and light massage were used. Later we gave her modified mud baths, on the ankles, wrists and hands. These mud baths required careful oversight, as the operators in institutions do not always distinguish between light and strenuous treatment. The menstrual function which was abolished in May did not return for six months, and then in proportion to her general physical gain.

Inasmuch as joint cases are most adversely affected by changes in the weather, we advised an absence from New York after October, and not to return until the Spring.

The patient reached Colorado Springs, in good condition, and has improved amazingly since her arrival. Her life is spent out of doors, and the same tactful nurse is giving her faithful and enthusiastic support to carrying out the treatment. In the nurses report under date of Nov. 22nd, 1911, she writes: "It is gratifying to report continued improvement in Mrs. H's condition. She looks really fat in the face, and her strength has improved remarkably. She has lunched out several times from one until four but has not shown the nervous fatigue, she did after exertion like this, before we left town, or even when we first came. Her feet are much smaller and she wears her high shoes without fatigue. Her intestinal tract, however, needs watching."

A letter under date of Jan. 19th, from the patient's husband further states that her weight is now 104¼ pounds, and that she is steadily improving. Fearing the moist conditions in California in December and January, they decided to remain in Colorado Springs until the 29th of January. He says that his wife now prefers the colder weather, and sleeps with her windows open even in zero weather. She can dress her hair, write, sew, and go up and down stairs without assistance.

In the foregoing you have doubtless observed how small a part, medication has played in the improvement of the condition.

I might say that with an idea of helping metabolism and helping out the thyroid deficiency theory, we placed her on five grains of the thyroid gland three times a day, after meals. As far as we could see after several months careful trial, it made absolutely no difference in her condition.

What did give systemic tone, improving both appetite and digestion was a capsule suggested by Dr. Hayes, consisting of 3 grains each of calcium lactophosphate, and sodium glycerophosphate after meals. She noticed promptly, when it was discontinued. Further benefit was also gained from the administration of mixed fats as soon as the cooler weather permitted it. Salicylates and iodides have done no good. She has omitted all use of alcohol, and her long experience in the foods having the highest caloric values are her present guide in her diet.

With the foregoing history and course of rheumatoid arthritis, I would venture a few remarks, drawn from a careful study of this case:

One cannot be too conservative in arriving at a positive diagnosis, in cases of the rheumatic group. In this instance the mode of onset passed through the suggestive periods of synovitis of the knee, tubercular knee, and possible sarcomatous growth, gout, acute and chronic rheumatism, and finally its ultimate diagnosis *acute rheumatoid arthritis.*

The severe toxemia accompanying its early stage, with evening temperature, sweating, and cardiac instability, which was evidently of central origin, as evidenced by the spinal involvement, cephalalgia, and muscular twitchings, all pointed to an acute infection. Instead of combating the infection by striving through food and nutrition to increase the opsonic index, iodides were pushed, which in large quantities invariably produce gastric irritation; and likewise salicylates, which in large

doses precipitate the pepsins in the stomach and markedly reduce to Hb. content of the blood. In other words the only means of combating the disease through nutrition and digestion is denied us by the previous excessive use of drugs.

Let me not be misunderstood in giving the impression that iodides and salicylates have no place in rheumatic conditions. In this case we are dealing with a rheumatoid arthritis, which is a separate and distinct disease.

The art of giving salicylates and iodides in indicated cases, is not in giving them—but in knowing when to stop giving them.

I cannot emphasize too strongly the assistance to be derived from measures directed toward local treatment of affected joints. Drugs of the anodyne group should be avoided as far as possible, particularly morphine, as the patient in this more than any other disease of a chronic character, soon learns the relief obtained and becomes an habitue. Codeine may be required occasionally, but aspirin is to be preferred, and then only when the symptoms require temporary relief.

The hot oven, the therapeutic lamp, and moist heat will give good results in the acutely inflamed stage. Naturally an inflamed joint must be kept at rest and immobilized. Our aim locally must be reparative stimulus, without motion. As the condition improves and the inflammation subsides we meet a condition of adhesive joint which will require careful passive motion and massage, and in this last procedure we are often surprised at the results obtained from regular systematic treatment. It will often take weeks and months to secure results but by continuous effort we can restore partial and in some instances complete function to stiffened joints.

Before closing I would speak a word of caution in relation to baths:

Baths invariably diminish weight, and that too often to an alarming degree. A bath which throws the patient into a profuse perspiration claims its pound of flesh, and the body economy, in this very loss, is less able to protect itself against later temperature changes and toxemia.

Bear in mind that rheumatoid arthritis is a chronic disease requiring limitless patience and resource, but also bear in mind that a hearty cooperation between patient, doctor, and nurse can accomplish wonders.

113 West 78th St.

THE ONION (ALLIUM SEPA) AND GARLIC (ALLIUM SATIVA) AS A REMEDY FOR PNEUMONIA AND PULMONARY TUBERCULOSIS.

BY

H. O. HALL,

Library of the Surgeon General's Office, U. S. A.

The subject of this paper, the onion and its near relation, garlic, seems to have entirely escaped the attention of American medical writers, so far as its use as a remedy is concerned, for I have been unable to find in the *Index Catalogue of the Library of the Surgeon General's Office* a single American reference to it in that connection. European writers, however, seem to have considered it worthy of careful study.

It is for this reason, and because of my long belief that the onion is a valuable remedy in pneumonia and other diseases

which has been lost sight of by medical men in the multiplicity of other remedies for pneumonia (a partial list of which is given below), that I venture to bring to the attention of the profession a few observations regarding it. Its very simplicity may in part account for its absence from the materia medica of the family physician. But it is more probable that the lack of any American medical literature, and the consequent paucity of information regarding its valuable properties as a germicide, disinfectant for ulcers, and as a remedy for pneumonia and tuberculosis, and all bronchial affections, accounts for its not being more generally used. I therefore earnestly ask that the thoughtful attention of the members of the American Medical Fraternity be given to the facts herein set forth.

The U. S. Dispensatory, speaking of the onion, says: "It is used as a stimulant, diuretic, expectorant, and rubefacient, and the juice is occasionally given made into syrup in infantile catarrhs and croup. Roasted and split the onion is sometimes applied as an emollient cataplasm to suppurating tumors."

Its near relative, "garlic," says the same authority, "as a medicine is of the highest antiquity. The oil may be given with great advantage in obstinate bronchitis, and in catarrhal pneumonia of young children. The bruised garlic cloves are often applied as poultices to the lungs, and similar applications were formerly used to the feet for nervous restlessness, or even convulsions of young children."

With regard to the antiquity of the onion as a medicine, it may be interesting to state that Pliny* ascribes to the onion twenty-seven remedies; to garlic sixty-one remedies. He says that garlic has very powerful properties, and that Aristotle, Sotion, and Dioscorides state to the same effect. Hippocrates, he says, states that garlic fumigations have the effect of bringing away the after-birth. Diocles prescribed it for dropsy and for phrenitis. Praxagoras used to prescribe garlic for jaundice; he employed it also as a liniment for scrofulous swellings of the neck. Garlic, Pliny says, cures cough, and suppurations of the chest, however violent they may be. Bulbed leek, says Pliny, furnishes thirty-nine remedies. Is good for coughs, catarrhs, and all affections of the lungs and trachea. To cut leek he ascribes thirty-two remedies, and says it has the same effect as bulbed leek, but the latter is the most powerful remedy. He states that the Emperor Nero used to eat leeks and oil every month on stated days to improve his voice. The allium sativa of Linnaeus was much eaten by the Roman soldiers and sailors and by field laborers. As to its value as a dietetic in preserving health, it is recorded that 1,600 talents of onions, garlic and horseradish were consumed by the workmen who were employed in building the pyramid of Cheops. We are also reminded that the Israelites, during their wanderings in the wilderness, murmured, saying: "We remember the cucumbers and the melons, the leeks and the onions." Among the ancient Egyptians the onion formed an object of worship, and the modern Egyptians assign it a place in their paradise.

The correspondent of the *London Lancet*, writing from India (1), Dec., 1908, says: "From time immemorial garlic, which is grown all over India, sold in every bazaar, and used very commonly in preparation of curries, has a high estimation in domestic medicine, and also in the ancient systems

*Pliny, Nat. Hist., II, 122.

of the Hindu writers. It is recommended by the earliest of these writers (Shusruta) for improving the voice, intellect and complexion, promoting the union of fractured bones, and helping to cure nearly all the ills that flesh is heir to. Its use is by no means confined to India; in Ireland it is taken as an infusion together with whiskey in colds and bronchitis, and farmers there and elsewhere, apply it as a poultice in anthrax, etc."

In the middle ages the hands were anointed with onion juice to prevent contagion in those exposed to infection.

The Greek physicians used onions in wine in catamenia. Remittent fever and asthma are said to have been cured by garlic, and it has also been claimed to be a bactericide against cholera.

As a disinfectant and germicide, Dr. Minchin, of London, says it is worthy the attention of bacteriologists, and he believes if applied as a poultice over the seat of inoculation, it will prevent the development of hydrophobia in a person bitten by a rabid dog.

In the Dutch West Indies it is customary to disinfect the sick room by the use of onions. Large onions are cut into slices and strewn on the floor, and every other day are swept up and burned. Here, too, garlic forms a staple article of diet at every meal. An English orchid hunter, known to the writer, states that having observed that the natives who used garlic continuously were immune to the bites of mosquitos, tried the experiment upon himself, and used it largely while in the jungle with the result that the mosquitos and other insects did not trouble him to any extent, and when bitten at rare intervals, he suffered no inconvenience from the bite.

The laying of a piece of onion on the site of a wasp sting, or the bite of other poisonous insects, is said to allay the pain. A like application to the back of the neck is claimed to stop nosebleed.

The Chinese seem to have learned the value of the onion, for next to rice probably no other vegetable is more largely used.

Dr. H. R. Beale, of London, in a letter to the *Lancet,* (2) on the value of garlic as a remedy, says: "I have used it with success in bronchial conditions, notably in bronchitis of the finer tubes when the patient feels 'all stuffed up,' and where on auscultation there is heard a large number of sibilant rales; also in cases where there is much purulent expectoration much relief results from the use of this drug. The active principle, sulphide of allyl, is undoubtedly excreted into the respiratory passages, and may very possibly act as an antiseptic. In Allbut's System of Medicine, Dr. Ewart recommends garlic in the treatment of bronchiectasis." Dr. Beale gives 15 grain doses of the garlic bulb chopped up and administered in cachets three or four times a day.

The onion as a remedy for pneumonia. Having shown that both garlic and the onion possess medicinal qualities which afford relief in bronchial and other affections, I desire to record a remarkable case which came under my own observation many years ago, where the life of the patient was no doubt saved by the use of onions. But before reciting the case I wish to state that in a medical journal not very long ago I saw a statement that in France pneumonia is now being treated by medical practitioners by the use of onion poultices. I regret very much having mislaid the reference. The article stated that the method employed was to chop up the

onions and mix them with meal, and then bake or fry them and place them in bags made of cheesecloth, applying them to the lungs at intervals of ten or fifteen minutes, keeping them as near as possible at the same temperature. Many cases were being cured by this treatment. I was especially pleased to read this statement because it confirmed me in the opinion I have held as to the value of the onion in pneumonia, since witnessing the case here recorded:

Case: The patient was a young girl who had ridden in an open sleigh all day in a temperature below zero, and had become thoroughly chilled, and was taken to bed with a case of double pneumonia. The physician, a most eminent practitioner of long experience and practice, did everything in his power to restore her, but while her life was prolonged several weeks by herculean efforts and careful nursing, she gradually failed until all hope was given up. Some idea may be had as to the efforts made to prolong life when I state that the street was covered with tanbark and the sidewalks with straw. Every door and window was battened, and not a shoe was worn in the house, so carefully was the patient guarded. She had been in a comatose condition for some time and the physician, stating that the patient was beyond hope, and would not live but a few hours, took his leave of the mother saying he would not return as there was nothing more he could do. The weeping family were gathered around the bed watching every breath thinking it would be the last, when an aged woman who had known the patient from her birth, entered the room weeping in sympathy with those gathered at the bed side. She pleaded with the mother for permission to try one more remedy she felt sure might even yet save the life of the patient. Her request was refused, but at length the mother consented to send for the physician and ask his advice. He sent word back that while he felt sure that nothing would avail in the present almost moribund condition of his patient, still, if it would be any consolation to the family and gratify the old lady, he had no objection to their trying the remedy, the nature of which had been explained to him. As soon as the messenger returned with the doctor's reply, the old lady went to the kitchen where a hot wood fire was burning, and taking about a dozen large red onions she baked them in the hot ashes. She then made a large poultice which she placed over the entire chest, another poultice was made for each wrist, and one for each foot. The patient remained in a comatose condition as she had done for many hours. Within twenty minutes or so, she broke out in a profuse perspiration, and shortly after opened her eyes, gave a deep sigh, and then seemed to fall asleep again. She slept for several hours, and then woke up and recognized those about her, and seemed much improved. In short, from that time she continued to improve, and went right on to complete recovery, and is alive to-day. It is needless to say that onions have been a household remedy in that family ever since.

According to Census Bulletin No. 108, for the year 1909, pneumonia caused more deaths than any other disease except tuberculosis, and only seven less than that disease. The number of deaths increased from 61,259 in 1908, to 70,135 in 1909.

List of various remedies. The following list of remedies and methods of treatment is taken from the titles of books and journal articles on the treatment of pneumonia as appear in the Index Cata-

logue of the Library of the Surgeon General's Office, and is necessarily incomplete, for there are many additional articles on treatment which do not state the remedy in the title, and text-books are not included:

Abortive treatment.
Acetate of lead.
Aconite.
Alkalies.
Alkaline beverages.
Alcohol.
Ammonia and Strychnine.
Antidiphtheritic serum.
Antifibrin.
Antiphlogistine.
Antipneumonia serum.
Antipyretics.
Antipyrin.
Antiseptic treatment.
Antitoxic serum.
Argentum colloidale.
Arsenic.
Baer's method.
Belladonna in large doses.
Benzoate of soda.
Bimuriale of quinine.
Blistering.
Blood letting.
Boric acid inhalation.
Boric acid injection.
Bromide of ammonia.
Cajiput oil.
Calcium chloride.
Calcium salts.
Calomel.
Calomel in sedative doses.
Camphor in large doses.
Cantharidal vesicants.
Cantharides.
Carbonate of ammonia.
Cardiac tonics.
Cardiac and vaso-motor remedies.
Chloral Hydrate.
Chloride of calcium.
Chloroform inhalations.
Climatic.
Cold applications.
Cold sponging.
Cold water pack.
Collargol.
Counter irritation.
Creosote.
Creosote derivatives.
Dietetic.
Digitalis.
Digitoxine.
Dovers powders.
Eichhorst's method.
Elalin.
Electrargol.
Elimination of sodium chloride.
Ergoline.
Ergot.
Ether inhalation.
Ether subcutaneous injection.
Fibrolysis.
Focher's method.
Free stimulation.
Fresh air.
Friction with mercurial ointment.
Galvanic method.
Guiacol.
Heat on the spine.
Hot applications.
Hot mustard bath.
Hydriodate of potash.
Hypodermic injection of calomel.
Hydrosulphate of antimony.
Hydrotherapy.
Ice.
Iodide of calcium.
Iodide of potash.
Iodide of potash and alcohol.
Iodide of sodium.
Inoculation.
Ipecaquana.
Iron.
Jaborandi.
Kalium bromatum.
Lactophenine.
Leucocytotherapy.
Local applications.
Lung puncture (operative).
Mercury.
Metalic ferments.
Mickromal.
Musk.
Naphtha and chloroform.
Nitrate of amyl inhalations.
Nitrate d'argento.
Nitrate of pilocarpin.
Nitrate of potash.
Nitroglycerine.
Normal salt solution.
Old flaxseed oil.
Open air.
Operative treatment.
Opium.
Opsonin.
Oxygen.
Oxygen and nux vomica.

Peroxide of hydrogen.
Phenic acid.
Phenols.
Pilocarpine.
Potassium of soda iodide.
Quinine.
Quinine inhalations.
Quinine and iron.
Restoratives.
Rib resection (operative).
Romer's Serum.
Salicylate of sodium.
Salicylic acid.
Serum.
Sodium formate.
Sparteine sulphate.
Sulphate of carbon.
Strychnine.
Tartar emetic.
Tartrate of potash and antimony.
Terebinthe emulsion.
Thermol.
Thiacol.
Todd's method.
Tracheal injections.
Traction plasters.
Transfusion of blood.
Transfusion of saline solution.
Turpentine hypodermic injection.
Vaccine.
Vapor of water.
Veratrin.
Veratrum viride.
Warm baths.
White oxide of antimony.

Garlic as a prophylactic and cure for pulmonary and general tuberculosis.

I now wish to direct attention to the use of garlic in the treatment of tuberculosis, for it is in this disease that the most real scientific investigation has been done.

Dr. Wm. C. Minchin, writing "on the value of garlic as a treatment for tuberculosis" (3) gives an account of his experiences with it in almost all forms of tuberculosis, and says "the results obtained from it are more encouraging than from any other treatment yet brought forward." After referring to the experiments of Dr. Cavazzini, mentioned below, he cites a former paper of his published in 1902 (4), in which he gave some of his experiments with garlic in the treatment of t. b. in its various forms. After this publication he became aware that Dr. G. V. Poore, of University College Hospital, London, (5) had already, in 1897, recommended that garlic should be taken internally in pulmonary tuberculosis, and states that the fact of the discovery of its utility being made in three places so remote from each other and quite independently, is in itself good evidence of its virtues in this disease.

Dr. Minchin met with great success, he states, by applying the juice of the garlic through an inhaler; he also used it internally but with varying success. Later he discovered that garlic, when applied locally, is freely absorbed by the skin, and penetrates to the deeper tissues, and he had gratifying success from the application of poultices of freely pulped or pounded garlic over diseased areas. He now applies these three methods combined in pulmonary cases with much success. Garlic will blister in from four to twenty-four hours, according to the variety. It acts very successfully when applied to any tubercular lesion, such as a joint, a tubercular gland, etc. Cases of laryngeal tuberculosis yield rapidly to the application of garlic, either by gargle, spray, or internal administration, accompanied by a poultice or garlic blister.

It is an excellent treatment for lupus, as it can be applied to any part. Where it can be borne, a blister of pulped garlic is the best and most rapid treatment, leaving it on three or four hours, and applying again after a few weeks; but lupus can be very efficiently treated by applying the fresh juice, but it does not act so rapidly. The allyl compounds, such as allylic alcohol, were shown by Dr. Koch to be strongly

antiseptic, and to have a remarkable power of inhibiting the growth of the bacillus anthracis, says Dr. Poore. "The farmers in England largely use garlic for the treatment of symptomatic anthrax or 'Black-leg' in cattle. It is a very harmless substance, especially when diluted, in doses of the juice from half a drachm two or three times daily. Half an ounce to an ounce of the bulb may be taken daily in an infusion with milk. It should never be injected hypodermically into the joints, etc., as its vescicating action sets up violent inflammation. It may, however, be applied externally over broken surfaces without danger, but no poultice should be allowed to remain over four hours on first application, after which it will be more easy to judge the length of time to leave other poultices, which must be applied at frequent intervals for several weeks to check the disease in the deeper tissues. The more severe the blister, the more rapid the cure."

Dr. Giulio Cavazzini, in 1901, (6) published a paper in which he claimed that he had obtained favorable results in cases of phthisis by means of garlic. His experience in the use of garlic in tuberculosis was confirmed by Dr. Piccini in 1901 (7). By Dr. L. Sacchi, in 1902 (8); by Dr. G. G. Deplano, in 1903 (9), who claimed to have cured pulmonary tuberculosis by use of garlic. Dr. B. Denti, in 1903, published a paper (10) "on the radical cure of pulmonary tuberculosis by garlic." In 1902 (11) Dr. Cavazzini read a paper at the International Medical Congress at Rome on the use of garlic in the treatment of tuberculosis. In 1903, "thinking it might be useful to see if garlic would also have a favorable effect on the course of other tubercular infections in animals, for experimentation, and, eventually, if it would demonstrate a specific action in phthisical diseases," made additional experiments, and published a preliminary note (12) on the results of his experiments. He states: "The question is of such vital importance that, having obtained favorable results from the first researches, I think it is my duty to make them known immediately in order to provoke discussion, and to stimulate research by which, if my purely objective statements were confirmed, a therapeutic and civil problem, which is, perhaps, the greatest one of our age, would be solved." "About the end of June, 1903," he says, "I took eight guinea pigs, six of which had been submitted to a preventive treatment for a fortnight, each swallowing daily 0.06 grammes (one gr.) of garlic juice. After having dried and powdered expectorated mucus from tuberculous patients, I insufflated a small quantity of this material into the larynx of each guinea pig. The animals so treated were kept for two days in a room impregnated with the same powder.

Two guinea pigs were kept as controls throughout the experiment. Three of the remaining six were given the above mentioned quantity of garlic for a fortnight, and the other three were given a similar amount until the end of September. The animals were killed the first week of October.

The results of the necropsies were that the abdominal organs and the lymphatic system of the two guinea pigs used for control were completely filled throughout with tuberculous formations in different stages of development. The microscopic examination of some tubercles proved the presence of Koch's bacillus. In the bodies of the three animals which had been treated with garlic for one month, I found from

ten to twenty small tubercles, some of them in the liver and some in the spleen. The examination of the tubercles did not reveal the presence of Koch's bacillus, but, instead, it showed the presence of numerous fibres of young connective tissue. In the bodies of the other three guinea pigs, those which had been treated with garlic up to the end of September, I could find no tubercular formations, though the most minute examination was made.

If these results should be confirmed by further research, it would be proved that garlic prevents, at least guinea pigs, from contracting tuberculosis diseases through breathing the germs. As this seems to be the commonest way of contracting phthisis, it may mean the discovery of a method for preventing consumption."

Dr. E. Blake Knox, Captain Royal Army Medical Corps, in a letter to the *London Lancet,* 1904, (13) after referring to the articles of Dr. Cavazzini, and Dr. Minchin, says: "For some years past, as opportunity presented, I have been working out the influence exerted by garlic on such different forms of tuberculosis as have been presented for treatment in the military hospitals to which I have been attached. I have used garlic as a poultice applied to tubercular ulcers with most beneficial results. It has a most powerful germicidal action, and when mixed with powdered charcoal it has the power of cleansing and healing the most fetid ulcer."

Dr. Knox then cites the case of a relative infected with tuberculosis of the lungs, whose sputum swarmed with Koch's bacillus, and who had a cavity in the lung as large as a walnut, and also several consolidated patched in lower lobe. He was under continuous garlic treatment for three years. The disease has been arrested, as proved by repeated physical and bacteriological examinations. He followed Dr. Minchin's method of treatment in the army, and met with unqualified success in arresting the disease. In his cases of tuberculosis of the lungs he found the best results by using the expressed juice mixed with water in one or two drachm doses at bed time and first thing in the morning, and in bad cases has used the juice alone in an inhaler. In no case was the digestion affected.

Whether Dr. Cavazzini has pursued his researches on this subject beyond the point recited in his preliminary note, I have been unable to learn from any later publication. But may we not safely ask the question if the subject opened up by him is not of sufficient importance to warrant investigation by American bacteriologists in order to determine definitely the value of garlic and the onion as a prophylactic or remedy for pneumonia and tuberculosis, etc.?

In conclusion, if, as shown above, garlic is used extensively and successfully in the treatment of anthrax in cattle, and it has been proved to destroy tubercles in guinea pigs, may I not be justified in suggesting the possibility that the depriving of milch and dairy cows of garlic in the spring and summer months to prevent them supplying garlicky milk, may account for so much tuberculosis in dairy cattle? Would it not be well for the Bureau of Animal Industry of the Agricultural Department to make some experiments along these lines, and ascertain whether cows which are given free access to garlic are as subject to tuberculosis as those deprived of it, and also what effect the free feeding of garlic to cows already affected with the disease would have in arresting it?

BIBLIOGRAPHY.

1. *Lancet*, Lond., 1908, II, 1784.
2. *Ibid.*, 1904, II.
3. *Ibid.*, 1904, I, 481.
4. *Med. Press and Circ.*, Dublin, 1902, June 4.
5. G. V. Poore, Nervous Affections of the Hand, and other Studies. Lond., 1897, 275.
6. G. Cavazzini. L'Allium sativum nella cura della Tubercolosi Polmonare. *Il Policlinico*, (Suppl) April, 1901.
7. P. Piccinini. Di un nuovo preparato dall' Allium Sativum. *Corriere Sanitario*, 1901.
8. L. Sacchi. Nuovo osservazioni sull' terapia della tubercolosi, ecc., Milano, 1902.
9. Gennari Deplano. Tubercolosi polmonare guariti con l' Aglina. Milano, 1903.
10. B. Denti. Contrib. alla cura radicale della tubercolosi polmonare. *Gazz. Internazionale di medicina*, 1903.
11. G. Cavazzini. L'uso dell' Aglio nella terapia della tubercolosis, ecc. XII Congreso medico Internationale, Roma, 1902.
12. G. Cavazzini. Preliminary note on the prophylactic action of garlic against tuberculous diseases. *Lancet*, Lond., 1904, I, 90.
13. *Lancet*, Lond., 1904, I, 1026.

ARTIFICIAL FEEDING OF INFANTS.[1]

BY

WARD BRYANT HOAG, M. D.,
Adjunct Professor Pediatrics, N. Y. Polyclinic;
Attending Physician, Out-Patient Department, St. Mary's Free Hospital for Children.

While we are to consider the *artificial* feeding of infants, it is the earnest wish of the writer to emphasize in the most positive manner the necessity of taking advantage of breast feeding in whole or part, where it is in any way possible. No matter how confident we may feel of our ability to offer a substitute food, only dire necessity should make us bold enough to suggest depriving a young baby of its mother's breast. Even one or two breast nursings a day are of very great assistance to enable a baby to properly digest his artificial food.

[1] Read before the meeting of the Bellevue Hospital Alumni Association, Nov. 6, 1912.

Before referring to the different methods of supplying artificial nutrition, let us consider certain general principles relating to infant feeding.

First, each infant is a separate proposition, and his assimilative possibilities can be known only as we begin at a minimum amount of nutrition and increase to a *reasonable* maximum, as the baby *shows ability* to *assimilate*. If these statements are correct, they set at naught the desirability or propriety of following prescribed formulae for the different months of age or pounds of weight of the infant.

Published formulae in connection with proprietary foods have done a great deal to confuse the general practitioner in feeding infants. They tend to establish feeding according to a rule, and negative the personal equation that must be solved for each individual. Every practitioner among infants should have some definite, easily solved method by which he knows the amount of fat, proteid and sugar he is giving his patient; this, in order to safeguard against giving an unreasonable amount, particularly of fat or sugar.

It is by no means a rare experience to find babies getting five or six—even seven per cent fat mixtures, and again seven, eight or nine per cent sugar. True they may take this amount of nutrition for a time and show phenomenal growth; but in giving these excessive percentages we are violating all precedents established by nature, and are almost sure to develop trouble.

Percentage modification of infant foods will be an incentive to *try* and increase one or all the elements of nutrition, when we realize we are giving less than nature intended the babe should have. Of course here our efforts should be most carefully

supervised, and should be entirely subject to the possibilities of the infant's assimilation. Nothing is ever gained by giving food in excess of a child's ability to make use of it. Rather feed a child on a food on which he develops indifferently, than attempt to push him beyond his possibilities of assimilation, and make him sick or very uncomfortable.

While we appreciate there is much latitude in the selection of a food which will agree with and nourish properly the infant with weak digestive possibilities, there is one factor in our experience which has more to do with causing and perpetuating trouble than any other. This is *too frequent feeding.*

In the past it was the rule, and is very largely at present, to feed infants every two hours; this means to put one mess of food into the stomach before the previous one has been digested. The stomach has no interval of rest, and the most appropriate nutrition sooner or later disagrees. If there be any question regarding this fact, pass a tube into the stomach two hours after a feeding, and wash out the contents.

Seven feedings in twenty-four hours should be the maximum number from birth; every three hours from six A. M. to six P. M., and four hour intervals from six P. M. to six A. M.; one *night* feeding about two A. M.; this till the child is about four months of age. Then the night feeding should be discontinued. More than a majority of infants fed every three hours during the day, and at ten P. M.—mother's bed time, will not require the *night* feeding.

If an infant shows a certain amount of digestive disturbance fed as above, make the interval of feeding three and a half or four hours, and give an ounce of boiled water, with a few grains of sugar added, a half hour before the milk feeding. This means a clean stomach for the reception of the food. If the ounce of water as a drink is not effective, once or twice a day, before feeding, pass a stomach tube, and wash out the stomach with plain boiled water, or use water with a little bicarbonate of soda or salt added. Too much emphasis cannot be placed on the value of the above expedients to enable an infant to assimilate an increased amount of nutrition.

Next in point of value to the character of the food and the intervals of feeding, is the *amount of food* given at a feeding. The *normal capacity* of infants' stomachs has been very definitely ascertained by Holt and others; a safe rule is seldom to allow more than one ounce more of food than the number that represents the number of months of age: two months, three ounces; four months, five ounces, etc.

A greedy baby will frequently, if allowed, over distend his stomach. This disposes to discomfort, vomiting and finally a dilated stomach. Nothing is gained by having a three months' infant take six ounces of food, and then have him vomit four or five ounces of it.

During the past five years there has been a great change in our conception of the relative frequency of trouble from proteids, fats and sugar, and undoubtedly this change has been productive of good results.

Until recently the proteids of cows' milk were considered the most difficult for infant digestion, while sugar (lactose) up to six or seven per cent was practically never considered to have any pathological significance. There is now shown an entire reversal of opinion from the old con-

ception. As a matter of fact, it is now believed that sugar, particularly lactose, is the primary cause of intestinal fermentation, and in cases of this trouble, the sugar should be reduced to a minimum; that fat should either be very much reduced or cut out entirely; and that the previously much abused proteids may be materially increased.

Again, the experience of very recent years has shown that while lactose is a most frequent cause of trouble in infant feeding, and ought not to be given in diarrheal conditions, that cane sugar is less liable to cause or perpetuate fermentation, and that malt-sugar, or malto-dextrin, is still less a cause of trouble. The discovery of this latter fact has enabled us to facilitate the nutrition of a large class of infants susceptible to lactose fermentation, or infants having been subject to an acute attack of diarrheal disorder.

In the successful artificial feeding of infants, proper consideration must be given to *climatic conditions,* regardless of social status or character of food. Prolonged high temperature always has the effect of decreasing an infant's possibilities of food assimilation, and increasing his chance of acute infections. During very hot weather we should reduce the amount of nutrition given an infant by one-quarter to one-half, thus protecting the child in a large degree from acute attacks of indigestion. While the nutrition is to be decreased, the bulk of the feeding is maintained by addition of water.

Social conditions, as influenced by either lack of money or mental conceptions of responsibilities, frequently make it necessary that we advise during hot weather a food of very much reduced nutritive value, but with increased protective qualities, temporarily, for the child's subsistence. Given a mother who cannot afford to buy a safe quality of milk, and who has no ice, we might better advise condensed milk, or one of the proprietary foods that is fixed without fresh milk. Again the same expedient is advisable when no amount of cautioning will convince the mother of the necessity of care as to cleanliness and regularity of feeding. It is remarkable how little nutrition will maintain life during protracted intervals, and it is infinitely preferable to have a live baby rachitic, than a dead one.

For practical reasons we will consider our feeding propositions: *first,* in connection with normal or ordinary babies; *second,* sick babies; *third,* babies with idiosyncrasies or difficult feeders.

Normal or Ordinary Babies:—Our only means of ascertaining a baby's digestive possibilities is by trial. The feeding of normal or ordinary babies should constitute the large part of our work. No baby should be fed on the "try this" or "try that" theory, for only too frequently with this plan will we upset the baby's digestion and make him sick.

We should have a definite idea as to what is safest and most appropriate, and with this we should begin. Let us first consider the demands of the new born babe, for until the third or fourth day, or later, we never know to what extent we shall be obliged to furnish artificial nutrition; and in furnishing this nutrition we are to be particularly careful to keep the babe, as he comes in a great majority of cases, a normal one.

During the first two or three days the baby never gets sufficient drink from the mother's breast. The question of nutrition need not positively be considered for

this short period, but it is often well to include with the water three per cent cane sugar to prevent tissue waste. The writer, during the first two days or until the breasts fill with milk, has the baby put to the breast every four hours for say five minutes, then one ounce of a sugar solution, one rounded tablespoon of cane sugar to one pint of water may be given. After the second day, if there is no breast milk for the baby, a certain amount of cow's milk is added to the sugar solution, and the baby is placed at the breast, and afterward fed every *three* hours.

The three hour interval of feeding during the day, breast or bottle, is continued indefinitely.

Now as to how much milk we shall add, and of what nature. Cream is more often offensive than proteids, and the only way we can ascertain the baby's capacity is by trial. Consequently we will first use skimmed milk, adding usually as little as four ounces to twelve ounces of the three per cent sugar water. This gives us a one per cent proteid. After two or three days, the skimmed milk can be gradually increased to one and a half per cent, six ounces to ten of sugar water, and one and a half ounces be given each feeding. Now the baby needs cream also in its food, and can usually take it up to two or two and a half per cent; we will ascertain his tolerance by beginning with as little as one-half of one per cent, (one-half ounce of gravity cream, 16 per cent, to the pint of food). At two or three day intervals, if the food agrees, the cream is increased one-quarter to one-half per cent each time, until we are giving two or possibly two and a half per cent.

While developing the baby's diet, if the bowels do not move properly, a quarter to a half teaspoon of calcined magnesia, or preferably milk magnesia is added to one or more bottle feedings each day.

The bowel functions can usually be regulated by the diet without resource to medicine.

After the baby has been taking the artificial food a week, possibly ten days, and remaining comfortable, the cane sugar should be increased from three per cent to four. This, with the one and a half or two per cent lactose, brings our carbohydrates to reasonable proportions.

Having now demonstrated the baby's ability to take fat, proteids and sugar in reasonable proportions, it is only necessary as the age of the baby increases to increase the amount of food, being particularly careful to keep the percentage of sugar and fat within the bounds indicated by nature in mother's milk.

Malt Soup.—"Malt Soup," in the estimation of many if not most men giving special attention to infant feeding, represents the most valuable artificial feeding product we have for infants. "Where 'malt soup' fails, the wet nurse is practically the only resource available." This is a very common statement among pediatrists. At the same time, malt soup is only too frequently given as a *last* resort, or when everything else has failed.

One very noted pediatrist objects to malt soup because infants fed on it *can get* scurvy; at the same time this authority says he has never had a case of scurvy on malt soup, because he always gives orange juice. The giving of orange juice is a simple expedient, and reduces the objection to nought. Again, in the "malt soup" preparation, if we have a safe supply of milk, or if it is not hot weather, we need not boil the milk with the malt flour and water.

If malt soup is so valuable when we are having trouble, it is even more valuable as an *every day* food for the normal baby, making gastro-intestinal trouble less frequent or possible.

The time is not far distant when "malt soup" as an artificial baby diet is going to be increasingly popular. To repeat, when we have a safe supply of milk, or the weather is cool, add the *fresh* milk to the boiled mixture when cooled; if we boil the milk, give two to four teaspoons of orange juice each day. "Malt soup" is particularly valuable after the baby is four or five months of age. This is the time, too, when the mother's supply is most apt to diminish or fail, and artificial food be demanded.

Preparation of "Malt Soup:" Any malt extract is available provided about fifteen grains of carbonate of potash be added to each ounce of the malt, to neutralize the acidity.

"Malt soup" must be used with care, as too much tends to loosen the stools. For a baby three months or younger, *begin* with one teaspoon of the malt extract for the day's supply; and increase very gradually, if the condition of the stools permit, to a tablespoon. Of flour, begin with two teaspoons and increase to a tablespoon and then two tablespoons. The writer usually uses prepared flour, flour that has been thoroughly baked or roasted. Ordinary wheat flour can be used, especially after the child is four or five months of age.

Of milk, skimmed at first, take eight ounces. Gradually add cream after a few days. Use sufficient water to bring the quantity of food up to the day's requirements. A three months' baby may have seven feedings of four ounces each, twenty-eight ounces for the day.

We have now:

Milk (skimmed),	8 oz.
Flour,	2 teaspoonfuls
Malt Extract,	1 teaspoonful
Water (warm)	20 oz.

Mix the flour and milk in one receptacle, and the malt and water in a second; then put these two together in a double boiler; boil slowly thirty minutes. Cool, and put on ice. Feed as directed.

There will be no occasion to strain the mixture if the flour is carefully rubbed with the milk.

Let me repeat what was said before: if we have a safe supply of milk, and particularly if it is cool weather, we will boil the malt flour and water, and then add the milk when the boiled mixture is partially cooled. While much more could be said regarding the feeding of normal babies, we will dismiss the topic with a few words regarding the amount of milk we would *like* to have a baby consume. What he *can take,* though, must be our rule.

With the carbohydrate addition, a three months' baby can seldom be expected to take more than twelve to fourteen ounces of cow's milk; six months, twenty to twenty-four ounces; and eight to ten months, one quart.

We must bear in mind that many babies fail to gain because they get more food than they assimilate.

Sick Babies:—In the feeding of sick babies, a distinction should be made in general between those sick with acute gastro-intestinal infections, and other conditions, though the initial advice should practically be the same for all. Regardless of the nature of an illness in an infant, we can seldom go astray if we advise a laxative at once; and for the first day at least let the diet be reduced to a gruel, or

a two or three per cent sugar water. The condition of an infant's digestive organs is of supreme importance, particularly when sick; and by taking the above caution, we avoid complicating a pneumonia, a pleurisy, a severe bronchitis, a tonsillitis, or any one of a dozen other conditions with a gastro-intestinal factor.

General sick diet: After the laxative and a short period of rest to the gastro-intestinal tract, we can usually with safety put the child on one-half strength of his usual food.

Gastro-intestinal sickness: If the sickness is an acute intestinal, or gastro-intestinal attack, while our initial advice is as outlined above, we can not after a day or so, by any means with safety to the patient, return to a fairly liberal proportion of his original diet. In these cases, haste practically always means waste. We should make the mistake of withholding milk *too long* rather than not long enough.

What we first give the infant in the shape of milk, after an acute gastro-intestinal attack, has much to do with the length of time necessary for his convalescence.

Our early assertions regarding milk sugar particularly, also fat, are here to be recalled; whatever scheme of return feeding we attempt, there is absolutely no question regarding the necessity of avoiding fats as completely as possible, and of keeping fairly low with the sugar, using either maltose or cane sugar in preference to lactose. This means we get the best results if we use maltose only with the water or gruel at first; and afterwards add fat free milk in the preparation of the food.

The simplest scheme will be to work up from a few ounces of skimmed milk, to which is added water or gruel, and two or three per cent sugar. We are to be very guarded in our attempts to add cream.

Take a six months' baby having had diarrhea; he has been cleaned out with castor oil; his diet has been a weak carbohydrate mixture for some two, three or more days; the stools are not offensive; the mucus has largely disappeared; the color and consistence of the stools are better. What addition shall we make to his diet, and how go about it? First day, add as little as three ounces of skimmed milk to thirty-three ounces of gruel or water; to this add two tablespoons, rounded, of malto-dextrin, and feed six ounces six times in the day. If the stools remain good, the next day increase the skimmed milk one or two ounces, decreasing the gruel by the same amount, and leaving the sugar stationary. After two or three days, making these small increases in the skimmed milk, we may make the increase a little more rapidly, until we are giving of skimmed milk twenty—possibly twenty-four ounces, the rest of the bulk of the food being the carbohydrate mixture. Now we may begin the addition of a very little cream—one-half ounce, or even less, to the day's food. Especially if the weather be hot, should we be very guarded about the increase of the fat. Do not mind the stationary weight. The child that is taking a fair amount of proteids will be substantial, even though he may not be fat.

"Malt Soup."—"Malt soup" made with skimmed milk, and beginning with a small amount of malt extract, particularly with infants over four or five months of age, meets our requirements more often than any other scheme of return feeding. Here we may usually safely begin with six or eight ounces of skimmed milk for the day's feeding, and work up gradually, being satisfied for quite a period with fat free milk.

The caution, observed above, regarding the amount of malt extract to be used, is particularly applicable when beginning "malt soup" as a food following an attack of diarrhea. Begin with the little and increase gradually to reasonable proportions, if the condition of the stools will warrant it.

"Eiweiss Milch."—"Eiweiss Milch" was first suggested by Finkelstein to meet the requirements of infants and children suffering with fermentative trouble, where sugar—theoretically at least, has been the causative factor.

Fat, as we have said, has to be reckoned with in advising a food for an infant recovering from diarrhea, so that now when "Eiweiss Milch" is used under these conditions, it is most appropriately made from skimmed milk at first, afterwards adding more and more cream.

"Eiweiss Milch" being a sour milk preparation, it is frequently impossible to get an infant to take it. When it is used, its place seems to be as the *first departure* from the gruel diet, which has been given during the acute symptoms. Its use is seldom indicated for more than one or two weeks; for infants to whom it is given seldom thrive. In place of the "Eiweiss Milch," after this first short period of use, we may appropriately substitute either "malt soup," modified fresh milk, or condensed milk, either sweetened or unsweetened.

Finkelstein's formula for "Eiweiss Milch."—Heat a quart of whole milk to 100 deg. F. Add four teaspoonfuls of essence of pepsin and stir. Leave the mixture at 100 deg. F. until the curd has formed. Pour the mass into a linen cloth and strain off the whey. Remove the curd from the cloth, and press it through a rather *fine* sieve two or three times by means of a wooden mallet or spoon. During this process, add one pint of water to the curd. The precipitate should now be very finely divided, and the mixture have the appearance of milk. To this mixture add one pint of buttermilk.

Note that this formula is made from *whole milk,* and contains 2.5 per cent fat, 1.5 per cent sugar, and 3.00 per cent proteids. With our present conception, we can most appropriately use fat free milk, when first using Eiweiss as a return diet, following diarrhea.

In using Eiweiss Milch, we can very appropriately begin with a small amount, one or two ounces to water sufficient to make up the feeding, and gradually increase as the stools approach the normal.

We may also, as soon as conditions are favorable, add increasing amounts of maltose, also cream when we make it from skimmed milk. This not only increases the nutrition, but improves the taste, and the possibilities of the child's taking it.

Condensed Milk.—Remarkably good results are frequently observed by using condensed milk, diluted with water or gruel. This is particularly true where we are able to obtain the fresh or unsweetened variety. This is easily prepared and requires little or no ice for keeping purposes. It must be obtained fresh each day though.

We may begin by using one-half or one teaspoon to each or every other feeding, and gradually increase the amount to one or two tablespoons to each feeding. When we consider it prudent, we may also add increasing amounts of cream, also malt sugar.

The unsweetened condensed milk diluted one part to six of water, gives us approximately one and a half per cent each

of fat, proteid and sugar. If we put one teaspoon to *six ounces,* we have one-eighth of the above percentages, certainly a very dilute food. When we can increase the amount to one or even two tablespoonfuls to the six ounces, we have quite a respectable diet; but one, if circumstances permit, that can be prudently increased by two or three per cent of sugar, also by one or two per cent. of fat.

The canned, or sweetened condensed milk has a large addition of cane sugar. A one in six dilution contains nearly nine per cent sugar, so that we are unable to give enough proteid and fat for a legitimate, long continued diet, without giving too much sugar. For the beginning return diet, though, after a sickness, we frequently get surprisingly good results.

Deficient as it is in nutrition, it is safer than a poor quality of milk without ice; and among the poor we frequently are obliged to use it for long periods.

When possible and prudent, we can easily add cream.

Difficult Feeders:—By "difficult feeders," we refer to that class of infants that show an idiosyncrasy to one or more of the three elements of nutrition—fat, proteids or sugar.

On account of the already too great length of this paper, we will omit going into details; and simply say we must ascertain the incompetence of the babe by beginning with one element, and discarding it for another, if this proves offensive. Much ingenuity is many times necessary to enable one to give enough nutrition to cause an infant to thrive, and at the same time keep him well and comfortable.

126 West 81st Street.

MUST OUR DIAGNOSES BE ACCURATE?

BY

B. G. R. WILLIAMS, M. D.,
Paris, Ill.

"He does his best; angels can do no more."

So great is the difference between the impotent speculator and the sober physician, that many hours must be set aside by the latter to correct the errors and abuses of the former, that our great science may not perish thereby.

Through diagnosis, we are introduced to our patients; and through diagnosis, therefore, do they obtain their first and most lasting impression of our present and future fitness. Time was when the family physician (and he makes up fully ninety percent of our profession) lagged somewhat behind, giving his chief attention to therapeutics. But watch him now slowly elbowing his way to the front.

Let us see. Several centuries ago, our medical forefathers delighted and astonished us with their vivid and accurate descriptions of symptom complexes. Behold the face in peritonitis, according to Hippocrates—the pinched expression, the dusky suffusion and the forehead bathed in clammy sweat. Behold the skin of smallpox according to Rhazes—macules associated with fever, appearing first on the forehead and anterior surfaces of the wrists, then slowly spreading to other portions of the body; in turn, a gradual fall in temperature, followed by a rise with the formation of vesicles and finally pustules. Behold the manifestations of scarlet fever according to Sydenham—a sudden onset, an intense fever, a marked angina, a diffuse and scarlet rash and swollen lingual papillae.

But yet we failed to correlate into systematic outlines and commit to memory these descriptions in such a manner that with but a glance at any sufferer, we could at once pronounce a final diagnosis. Because of various factors better understood to-day, a given disease failed to exhibit exactly the same visible phenomena in two different individuals. Then despairing but still struggling gamely, we attempted to select out certain symptoms here and there—rose spots of typhoid, buccal spots of measles, spleen cake of malaria—of pathognomonic significance, but in vain.

At length the wonderful Rene Laennec gave us the physical aids to diagnosis. And what could we not diagnosticate then? By percussion and auscultation, we were at last in a position apparently to make accurate conclusions in every instance. But valuable though these aids have proven, our disappointment was keen when we realized that while we might ascertain the nature of the structural alteration, we could not by accoustics alone, determine etiology. For to treat a disease, we must know something of its cause.

Ah, here at last was the true path; and so we had Virchow and Pasteur whose researches enabled them to bring under the domain of scientific laws, phenomena of disease and lay the foundations of modern pathology. No longer could we say with our medical predecessors: "We must be on our guard against the fancied excellence of accurate diagnosis: remember that it is our business to treat disease, not to be supremely wise," but must use these new truths along with the older ones that we might in the end treat *best* the disease.

Pathology being still in its infancy, we have no right to predict whether it will or will not lead us to precise diagnoses in all diseases. We can only say that in many conditions, the laboratory information, though not the entire arch is certainly the keystone for the arch upon which we must build our treatment. Despise it and tear it out and a fall is inevitable.

In this connection, I could give many illustrations; and I might add that in a communication of this kind the urine, blood, sputum, pus, gastric and bacteriological examinations are usually cited by the writer to prove his case. But it seems to me that one of the most beautiful fields of accurate diagnosis is that which has been developed chiefly by Carl Ruge, following the induction by Olshausen of *abrasio mucosae* as a gynecologic operation—the diagnosis of uterine diseases by an examination of the curettings. Here with practically no danger and with the greatest of ease, our most positive diagnoses are realized and the most rational therapy instituted. Then there are the cytological examinations of the puncture fluids and indeed many other exact procedures which have been placed in the hand of the diagnostician. If the selection of my subject warranted, I could continue to enlarge upon other fields in which pathology has put diagnosis upon a scientific basis.

While we must ever be conservative, we cannot (as we often do in therapeutics) diagnosticate the patient rather than the disease. Now this applies chiefly to those morbid conditions due to extrinsic factors rather than those of intrinsic etiology, or inherent in germ protoplasm. In other words, while syphilis may respond only to different treatments in two individuals, yet the finding of the treponema pallidum gives us the final diagnosis irrespective of any

idiosyncrasies which either may present. But in the intrinsic conditions as certain forms of alcoholism, neuroses, epilepsy, hereditary insanity, etc., we may be compelled to diagnosticate the patient as well as the disease if we would learn more of the probable causes and nature of the latter.

Now and then, we still meet the man who plays safe. Instead of attempting to diagnosticate accurately, like a pendulum he has swung to the opposite extreme (can it be that he fears pathology?) giving chief attention to the *general condition* of the patient and attributing to the actual name of the disease, a minor significance. Such a man may be less dangerous than the man who is confident that he can classify accurately every sick man, but he will fail to give mercury or salvarsan in many cases of syphilis, antitoxin to many cases of diphtheria, salicylates to many cases of endocarditis and proper bacterins to many cases of infection. He will treat numerous cases of appendicitis for hyperpyrexia and numerous cases of carcinoma ventriculi or abscess of the gall bladder for dyspepsia. In which and in many other instances, he will prove even more dangerous than the rankest extremist of the opposite type.

We should, therefore, it seems to me, make our diagnoses as accurate as possible. Now and then this knowledge may seem superfluous, but really it is not. "Why," ventures the critic, "diagnosticate accurately typhoid when even though successful, we have no specific treatment to offer?"

"For the reason," I would answer, "that by so doing we rule out probability of appendicitis, pyelitis and many other conditions of similar symptomatology and which require radical treatment of a different nature. The next case will prove to be one of these."

And after all, here is the truth. By perfecting our diagnostic methods, now and then we detect one of these cases and classify it properly when visible phenomena are vague—before it is too late. This, I believe, is sufficient recompense for both examinations. Although desiring to subtract nothing, absolutely nothing from other methods, I have come to place much confidence in certain chemical, microscopic and bacteriological procedures when attempting to make a diagnosis. And I might hasten to say that I speak not as a college clinician or as an ultrascientific faddist but as an active practitioner of medicine.

The practitioner, especially he upon whose diploma the ink dried many years ago, has been dazzled by the numerous and innumerable laboratory examinations which have been flaunted in his face during the past twenty-five years. It is safe to say that of these fully three-fourths have proven of little value to the diagnostician; and that many of them are still treasured by the books intended for the practitioner, is a matter quite beyond my understanding. Surely it is not the intention to confuse these men who need this information most.

But upon the other hand, the practitioner may perform with ease and accuracy most of the valuable tests, if he but obtains the proper guides and apparatus for the work. While such cannot well be included in a communication of this scope, I have been intensely interested in this very subject for several years and will count it no inconvenience to give any reader the best references at hand if he will be so kind as to enclose postage for a reply.

With but little expense and less study, any practitioner may easily place himself in a position to diagnosticate quite as accurately as the man in the most elaborately equipped metropolitan hospital.

As I have said, over ninety percent of us are family physicians. There is still need for the accurate diagnosis where this is possible. He who does the best he can (surely he must spare no effort to do this) need not worry: angels can do no more.

109 E. Court St.

PERSONAL EXPERIENCES WITH THE SUBMUCOUS RESECTION OF THE NASAL SEPTUM.[1]

BY

WM. FERGUSON, M. D.,

Laryngologist, House of Refuge; Assistant Surgeon, New York Throat, Nose and Lung Hospital.

New York City.

If we review the history of any enterprise we will notice various milestones marking achievements on the road to progress and success. In the history of rhinology and laryngology, to my mind, no milestone stands out so distinctly typifying progress and achievement as the adoption of the submucous resection.

Previous to the introduction of this operation the specialist strove to relieve the catarrhal conditions present in the nasal cavities by such means as the Asch operation and the use of the snare, saw or cautery. In fact, he was simply a patcher and trimmer, but with the introduction of this comparatively new operation he at once leaped into the position of the conservative surgeon, as he not only relieves the congested turbinates, inproves ventilation and drainage but saves and improves the functional nasal mucous membrane. Some surgeons are likely to become too enthusiastic over this operation. Patients have informed me that the operation has been suggested to them, who on examination exhibited slight deviations of the septum but not sufficient to interfere with drainage or ventilation and in whom the function of the swell bodies was normal; this would be meddlesome surgery. Not every deflection needs operative procedure but where we find spurs on one or both sides of the vomer, with deviation of the septal cartilage and the perpendicular plate of the ethmoid, resulting in bad ventilation, accumulation of secretions, post nasal catarrh and negative pressure in the sinuses. Here the operation is imperative.

In fact, wherever we find such spurs and deflections present and associated with a history of recurrent attacks of acute rhinitis, the presence of chronic hypertrophic or hyperplastic rhinitis, acute or chronic sinusitis, polypoid degeneration of the nasal mucosa, chronic catarrhal otitis media, chronic hypertrophic pharyngitis and laryngitis, the operation is indicated. One other indication for this operation, and to my mind, an important one which I believe will be recognized in time, and that is certain cases of simple atrophic rhinitis.

I would like to say a few words regarding this last condition in reference to operation. From my experience in nose and throat work, I believe such patients derive much benefit from the operation in spite of the stand taken by many rhinologists of the present day who look upon it as an incurable condition and claim by improving the air space we only increase

[1] Read befo e Clinical Society of the New York Throat, Nose and Lung Hospital, Nov. 6, 1911.

the drying and crust forming tendency of the disease. With these gentlemen I beg to differ. Whatever is the cause of the condition, and so far no one has advanced a well established theory (nor will I attempt to, I simply deal with results obtained) some claim the process begins in the sinuses, others that it is a sclerotic atrophy of the mucosa, while others claim that such unfortunates are born with pavement instead of columnar ciliated epithelium. Whatever the cause, the results you have all seen in varying stages of the disease.

Now by performing a submucous resection on these cases we improve the drainage of the sinuses, relieve post nasal catarrh and virtually establish a new circulation. As a result in both hospital and private practice I have obtained most remarkable improvement, cessation of pus and odor, disappearance of crusts, return to normal appearances of the nasal mucosa, with relief from the distressing throat symptoms and from an examination of these cases, three months after operation you would hardly credit that these healthy looking mucous surfaces had at one time been the seat of atrophic rhinitis.

Some surgeons might ask, "do you advise operation in all atrophic cases? And if not, why not?" Well, if we are conservative surgeons we would not operate on inoperable cancer, either to exhibit our skill or for pecuniary benefit, so in atrophic rhinitis in the early or mid course of the disease with spurs and deflections present I would do the submucous resection but where the atrophic process had done its worst, or nearly so, I certainly would decline. To operate on these atrophic cases is no sinecure, as the tissues are like wet tissue paper and tear easily but with a steady hand and patience you will succeed and in a large percentage of selected cases the operation holds promise of much relief, if not cure, to these unfortunates.

As to the technic of the operation, much has been written and many instruments devised and they still grow in numbers and variety of shape, bidding fair to outnumber the inventions for the removal of tonsils and adenoids.

The more simple the equipment the better the work. A short bladed scapel, a sharp and dull elevator, Mosher extension speculum, McCoy or Jansen-Middleton forceps, a chisel and pair of Knight's forceps should suffice, with a good light, for no step should be made unless your field of operation is clear and under a good light.

One great stumbling block in the operation is the getting safely through the cartilage. I first used the curette, but I found it required considerable pressure, they dull very easily, and again in traumatic cases, instead of one layer of cartilage I met two, which was at first very confusing and when I inserted my elevator in the irregular deep scoop made by the curette unless great care was taken you could easily perforate as the edges of the cartilage are not sloping but concave. At present, I use the same scalpel as used in my primary incision and if the cartilage be much deflected, irregular or evidence of trauma, to be perfectly safe I insert the tip of my left little finger into the opposite nostril and can follow the point of my knife from top to bottom without danger, leaving a clean sloping incision through which one can easily insert the elevator under the perichondrium of the opposite side.

Another difficulty met in the operation is elevating along spurs. I always make

my primary incision on the left side, no matter what the deformity, for to work successfully with a right side incision one must be ambidextrous or you will certainly do much tearing and injury to the mucosa. With spurs I work down to the spur and well back, then carry my primary incision outward across the floor of the nose and elevate up to the spur, then with my elevator I go above the spur well back over the perpendicular plate of the ethmoid and by hugging the spur gradually insinuate my elevator downwards and forwards. In cases with double spurs the same method is carried out on the opposite side. All spurs should thoroughly cleaned out or you fail in results.

One very important spot which is sometimes overlooked is where the septal deflection presses against the middle turbinate. Unless this is thoroughly cleared out you may find your patient much improved but complaining of headaches due to pressure at this point and may later require the removal of the operculum, which would be unfortunate. Existing adenoids must be taken care of as they sometimes interfere with results desired. Having completed your operation and after inspection found both nasal cavities well balanced and clear of obstructions, you are not at the end of your troubles for dressings can give you trouble, and here we again can only learn from experience, which is generally unpleasant and unprofitable.

Some surgeons do not dress the nose, simply bring the surfaces together and leave the result to nature. These will save themselves the possibility of a hematoma but they lay themselves open to the possibility of wound infection. I have never tried this method of after treatment. Some surgeons use Simpson-Berney sponges. This kind of dressing can make lots of trouble, they are not always sterile and although I have escaped the experience I know of cases developing middle ear inflammation following their use. Again they are anatomically defective as no provision is made for support in the upper nasal space and I have seen the result sought, defeated by the accumulation of a blood clot between the unsupported mucous surfaces above the level of the Simpson sponge, and this in spite of careful examination of the field of operation for bleeding points before inserting the sponges, this may partially absorb in time but is very disappointing to your patient.

I use gauze dressing either bismuth or 5% iodoform ½ inch, passing the end of my gauze strip up between the septum and middle turbinate. I pack from above downwards on both sides, retaining control of my flap with a pair of small angular forceps Pack lightly otherwise the reactionary swelling of the mucous membrane against a tight pack will be followed by excessive turgescence of the lower turbinates for sometime after dressings are removed. As a final precaution I use a mirror to examine the pharynx and see that my dressing does not endanger the Eustachian tubes.

The submucous resection depends not so much on instruments as on a man's ingenuity. No two men will use the same instruments or method in overcoming his difficulties and in some cases one's ingenuity and patience is tested severely. Only by continuous labor and patience can we become adept. What relief we afford our patients: Freedom from recurrent catarrhs of nose and larynx, headaches, stuffiness, constant hacking and restless nights followed by dry tongue and poor appetite

and in selected atrophic cases from the crusts, bad odors and dry throats. No other nasal operation offers such satisfactory results to both patient and surgeon.

Whatever errors have been committed unwittingly in the past by the rhinologist with his snare, saw and cautery, with the adoption and perfection of the submucous resection he has risen to the high plane of a beneficent and conservative surgeon.

40 East 41st Street.

WHAT THE GENERAL PRACTITIONER SHOULD KNOW ABOUT ORTHOPEDIC SURGERY.

BY

P. WM. NATHAN, M. D.,
New York City.

To judge from the experience of those who suffer from the severer forms of the so-called orthopedic conditions, there is practically no unanimity of professional opinion, as to the proper methods to be pursued in the treatment of these maladies. That such an opinion should be prevalent amongst the laity is not surprising. They, when threatened with permanent disability, seek much advice, and frequently are not satisfied until they receive promises of cure. They do not know nor are they supposed to know that these promises are often based on cupidity, and alas, only discover the true state of affairs, when they have spent their money or have become disgusted by failure.

What is astonishing, however, is the fact that the medical profession generally should, in a measure, share this belief with the laity; the more so, since there is no field in medicine in which the indications for treatment, and the methods for carrying it out are more definite and unequivocal. Though he cannot often promise cures, and the methods employed by different individuals may vary as to details, the capable and honest orthopedic surgeons far from having indefinite and paradoxical views as to the principles underlying the treatment of the conditions with which they have to deal, are absolutely in accord.

It is the fact, that the profession generally takes so little interest in the subject of orthopedic surgery, that its principles are entirely unknown to them; and it is because patients must discover from their own experience, just where they can, besides, find proper treatment, and integrity which causes such widespread doubt as to the efficiency and trustworthyness of the medical man in orthopedic matters.

I constantly hear the complaint that the specialist is gradually encroaching upon the field of the general practitioner or the "family physician." If this is true, I fear the "family physician" has only himself to blame. There is no reason why the general practitioner should not have at least an idea of the principles which govern the treatment of diseases, whatever their nature, and thus be enabled to advise his patient and protect him from bunglers and quacks.

There are certain principles, governing the treatment of orthopedic cases, which are easily acquired; and the general practitioner who knows them is in a position, not only to retain the general supervision of his cases, but he can, in many instances, save his patient useless expense, and unnecessary suffering, and disappointment.

Before calling your attention to a few of these principles, it is necessary to speak briefly, of certain fallacies and bugaboos, carried down by tradition for the last few centuries, which are more or less of a

hindrance to orthopedic practice. It is to be regretted that a certain class of general surgeons are responsible in keeping some of these ideas alive. These latter take pains to reiterate on every possible occasion, that the orthopedic surgeon is not really a surgeon; that he knows nothing of asepsis, is an unskillful operator, and that many of his operations are unscientific. It seems unfortunate that such falsehoods should need to be refuted.

It must be known to every educated medical man that the orthopedic surgeon receives the same hospital training as the general surgeon plus the special training in the mechanics of bones and joints. That the orthopedic surgeon knows nothing of asepsis, is an absurdity, which just those who take pains to diffuse this falsehood, should leave severely alone. During my ten years service at the Hospital for the Ruptured and Crippled, I never saw a case of infection following an orthopedic operation.

Surgeons who make these assertions can hardly be familiar with the routine operative work of the orthopedic surgeons, or else they willfully distort the facts. They must know that orthopedic surgeons are constantly resecting such large and important joints as the hip and knee, without resorting to drainage of any kind, often allowing the patient out of bed within ten days or even less, wearing a permanent dressing which is rarely removed until healing of the wound and fracture is complete. As far as the eradication of the disease is concerned the results obtained in these and other bone operations performed by the orthopedic surgeon, to say the least compares favorably with similar work done by the general surgeons. As far as the final mechanical result obtained by the orthopedic surgeon in these cases is concerned, these are so far superior that comparison is futile.

It must be the same class of general surgeons, who are so familiar with the mechanical treatment of fractures, that they scorn it entirely and operate upon all, even simple recent fractures. It is under these circumstances that the difference in professional opinion is apt to become manifest, and justly causes dissatisfaction and not infrequently disgust. The family physician should know that it is rarely necessary to operate in recent fractures. In children, I should say, operations are practically never required if the surgeon is at all familiar with the use of apparatus and bandaging. The family physician should know this and advise his patient accordingly. There are, no doubt, certain complicated forms of fracture which require operative treatment, but these are uncommon, and regarding them the opinions of all capable surgeons would be unanimous.

The majority of general surgeons still treat cases of fracture of the neck of the femur by bed extension, a method, which years of experience has shown to be inadequate mechanically and dangerous to life in the elderly subject. This in spite of the fact that by the application of a simple plaster of Paris spica, in the manner recommended by Whitman, these fractures can be firmly held in the proper position, and the patient is not confined to the bed at all. I consider the family physician who allows his elderly patient, with fracture of the neck of the femur, to be treated by the bed extension method, entirely responsible for the result. The difficulty here lies in the circumstance, that very few general surgeons know how to apply a plaster of Paris spica properly. Hence the

only solution to this difficulty is that the general surgeons should give up these cases to the orthopedic surgeon for treatment, or learn how to apply the spica. It is to be feared he will resist either of these alternatives.

Another of the numerous facts regarding fractures which should be known to the general practitioner is that, for obvious reasons, it is impossible to get union in good position, in fractures of the lower end of the tibia and fibula, unless the foot is held absolutely at right angles. If reposition is not affected immediately after the injury, this is not infrequently impossible without tenotomy of the tendo Achillis or heel cord.

This brings up another point which continues to be discussed in certain quarters. This is the danger of non-union after tenotomy of the heel cord. I have heard from more or less reliable sources, that this untoward event has been known to occur; but in my twenty years of practice, fifteen of which have been devoted to the study and practice of orthopedic surgery, I have never seen an actual case. There never need be any hesitancy in doing a tenotomy because one fears non-union; all one should be sure of, are the indications.

I believe the general practitioner should familiarize himself with the mechanical principles which govern the treatment of fractures. He should, at least know the comparatively simple measures, which if properly applied, are often more likely to lead to good results, than complicated operative procedures. For if he knows these, he is at least in a position to judge whether or not, his patient is being properly cared for, should he, because he feels his lack of constant practice in these matters, not care to undertake the treatment himself.

Personally I feel that because of his better mechanical knowledge, and constant practice with apparatus and bandaging, the orthopedic surgeon is better fitted to care for fracture cases than either the general practitioner or the general surgeon. I do not mean to infer that the general surgeons have not the right to treat these cases; but I feel compelled to say, that, if he does undertake their treatment he is in duty bound to study the mechanical principles which underly the procedures to be carried out. These things cannot be done intuitively; nor does a large experience in abdominal surgery make the surgeon more competent to treat fractures. Only after the general surgeon is brought to a realization of these facts, will the orthopedic surgeon be relieved of the burden of caring for the numerous failures in the treatment of fractures which come from the general hospitals.

Exactly similar conditions prevail, in the surgical treatment of diseases of the bones and joints generally. The bones and joints have mechanical functions; when they are the subject of disease, the treatment must be adapted not only to the immediate relief of symptoms, but to the future mechanical necessities. That the general surgeon does not always consider ultimate mechanical functions which these organs must perform, is born out by the fact that secondary operations are often necessary to correct deformities which should have been forestalled by proper dressings, etc., at the primary operation; by the fact that bone plugging, wiring, etc., are still constantly being discussed in associations of general surgeons, when the proper

operative procedures make these devices entirely unnecessary.

Of late years, we have had a number of rather widespread epidemics of poliomyelitis. This condition with its final results is one long familiar to the orthopedic surgeon; but, to judge from the expressed views of some of our leading neurologists and pediatrists, has until recently entirely escaped them. Hence it is, that a family, so unfortunate as to have one of its members so affected, providing they have the money to spend, hear the most diverse and and not infrequently the most antiquated notions regarding the treatment and its results. These views, only some of which can be honestly intended, not only lead to much unnecessary suffering but places the medical profession at the mercy of scoffers.

As this condition continues to be prevalent and unfortunately seems likely to remain so, it is important for the family physician to become familiar not only with the supposed etiology and pathology, but also with the practical side of this condition. He should, in a measure be able to advise his patient or his family, regarding the propriety of the methods of treatment to be carried out.

In this connection, the family physician is, to a certain extent, responsible for the ill results and the disappointment caused by ignorant or dishonest practitioners, be they regular or irregular. He should know, for instance, that the injection of strychnine into paralyzed muscles, is not only painful, but is absolutely without benefit. I have known patients to receive these injections once or more weekly, throughout the course of an entire year and to the complete exclusion of all other treatment. As every one who takes the trouble to inform himself, knows these injections to be useless, I consider this almost criminal.

There is no doubt that massage and electricity aid in retaining or stimulating the tone of partially paralyzed or weakened muscles; but it should be perfectly evident to every one (though it is not, or I would not speak of it) that they have no influence in restoring degenerated nerve cells. And yet in many instances these procedures receive more consideration during both the early and late stages of this disease, than more rational measures.

Long experience has taught us that contracture and deformity may, and often do occur during the initial stage of poliomyelitis. It is important to know this for several reasons. In the first place, contractures often need operative measures for their correction. Secondly, it should be more generally known and appreciated that contracture of one muscle always leads to a stretching and in the case of a paralyzed or weakened muscle, to more or less permanent lengthening of the opposing muscles. This means that, even should there be complete recovery the stretched muscle will, nevertheless, lose in efficiency. Hence orthopedic measures, not strychnine injections, nor massage and electricity, are the most important considerations in the early as well as the late stages of infantile paralysis. These children should be so placed that the stronger muscles do not contract, even should this necessitate more or less complete immobilization.

Of course when one speaks of immobilization one is immediately confronted with that pernicious fallacy, that immobilization leads to atrophy which is true,—and that this atrophy leads to serious consequences which is absolutely false.

There is no doubt that muscles atrophy when they are put at rest, but it is a fact

patent to every one who has eyes and a little experience, that this atrophy soon disappears when the muscle is permitted to resume its function. Indeed I have seen muscles immobilized for a number of years regain almost complete activity within a few months.

Hence there is everything to be gained by keeping children at rest during the early stages of poliomyelitis.

It should be understood that more or less complete recovery from poliomyelitis depends, not upon the kind of treatment, but upon restoration of the cells in the spinal cord. Hence beware of the man who tells you he cures his cases of infantile paralysis.

Moreover, the recovery or the complete destruction of the anterior horn cells is entirely independent of treatment applied externally. All we can do is to retain the parts in their proper relation and improve the mechanical conditions as we find them. If the cells recover, the muscular power will return even if the limb has been completely immobilized.

These considerations must be born in mind when the question of applying braces comes up for discussion. What applies to braces in the treatment of infantile paralysis, is equally applicable to the use of braces in other orthopedic conditions. Braces or splints of various kinds are never applied by a qualified orthopedic surgeon with the idea that they are curative. They are used principally for two distinct purposes; either to retain a bone or joint in its proper mechanical relations, without strain, whilst nature or general treatment restores diseased parts; or to improve the mechanical efficiency of some part of the skeleton, impaired by disease or accident.

In infantile paralysis a brace is applied to facilitate walking. It has no bearing either in curing or preventing recovery, except that by retaining the efficiency of mechanical relations, it often saves the patient the necessity of undergoing operations later on, and promotes the general well being by permitting locomotion. It is either with the intention to willfully falsify, or due to their dense ignorance, that certain individuals maintain that braces properly applied can or will do harm. And the claim made by some that they can cure infantile paralysis and make more or less completely paralyzed individuals walk without apparatus, is too preposterous to be excused as actuated by natural enthusiasm or philanthropic ardor.

I have only called your attention to a few very evident considerations, which the general practitioner should take unto himself. I have perhaps, encroached somewhat inordinately upon your time and patience. But I hope I have interested you at least a little. For, in principle, similar conditions apply to all the special branches of medicine.

I think the family physician should make it his duty to know the principles of the management of the treatment of patients irrespective of the nature of the illness. In this event he can become a real family adviser. It develops upon him to direct them when they need special care; and if he has their interests at heart, as he should, he will make it his business to know where and how they can best be cared for honestly and efficiently.

If he sees his duty in this light he will become a real family adviser and trusted friend, and under these circumstances I can imagine no more useful or honorable calling than that of the family physician.

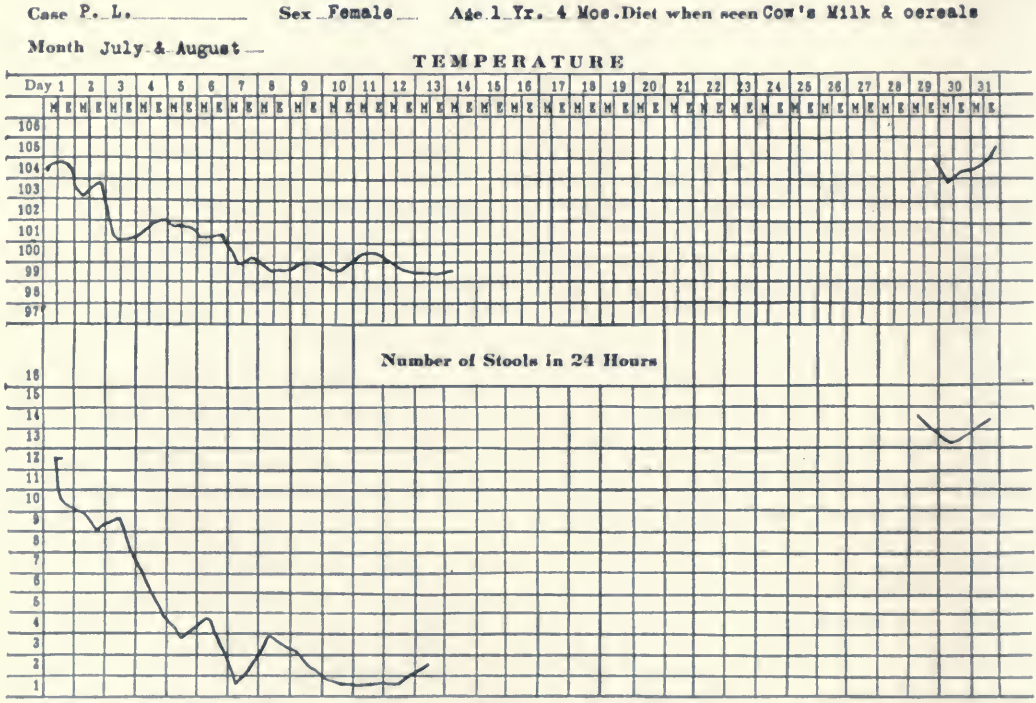
ACUTE GASTRO-ENTERITIS IN YOUNG CHILDREN.

BY

BOYCE W. KNIGHT, M. B., L. R. C. P.,
New York City.

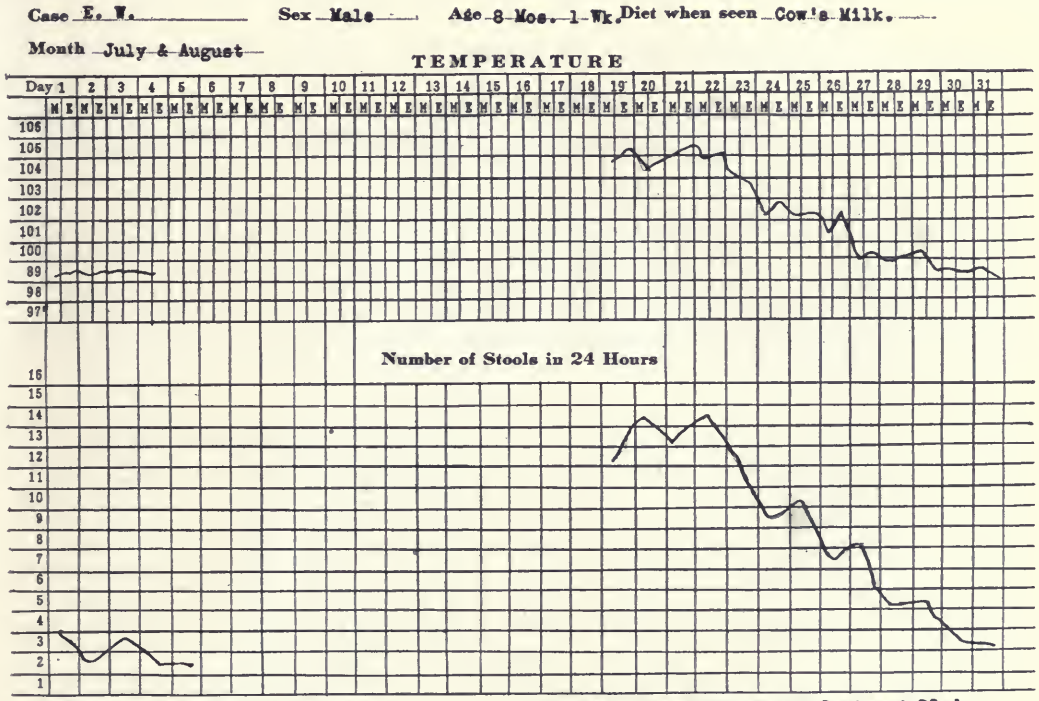
Acute gastro-enteric intoxication, more frequently known as summer diarrhea, has been, and probably will continue to be, one of the greatest problems that the pediatrician has to face in his practice. Without doubt the death rate in this condition is gradually decreasing, both in this country and in Europe. Diarrhea in the young child is brought about by one of two causes, namely—diminished absorption of water by the intestines, or increased secretion of fluid from the intestinal mucous membrane, or a combination of both. The commoner of the two, without doubt, that we are called upon to combat is the form characterized by diminished absorption from the intestinal tract.

Etiology.— Summer diarrhea occurs most frequently in children under two years of age, and is characterized by abnormally fluid stools, of an increased number, varying from six to twenty during a period of twenty-four hours. The bacteriology of this condition is one that remains at the present time unsolved. We hear from one authority whose ability is beyond question, that we have to deal with bacteria of one kind. From another equally eminent man, we hear that the cause is an entirely different bacteria; and still more frequently do we hear that the



condition is simply an intoxication caused by various putrefactive bacteria. From my own experience, I am more inclined to believe that the latter theory may be the correct one; but there are hopes that we shall one day definitely know what particular bacteria we have to combat in this class of case.

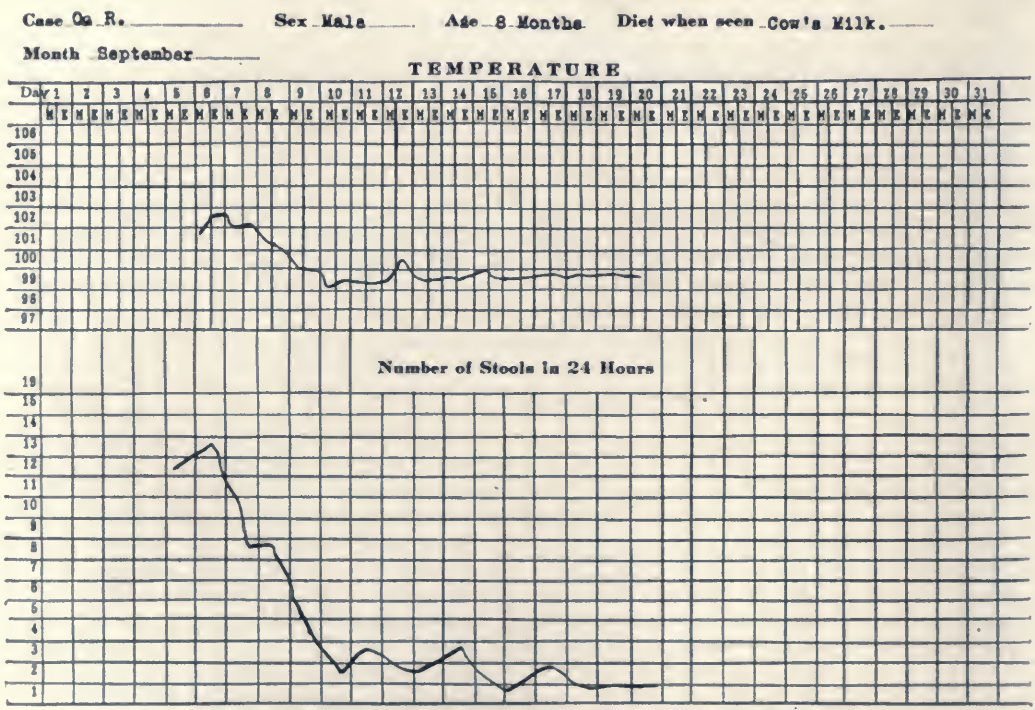
of toxins to take place therein. Other authorities tell us the condition is the result of the exposure of the baby to a high temperature, say above 85° Fahr. I believe that neither one of these two conditions is entirely to blame. I am confident that if milk in the same bacteriological condition as that which we find in the summer, were



The predisposing causes of acute gastro-enteric infection present another side of this important question which requires serious thought. The work of Seibert, of New York, leads us to believe that the condition is the result of prolonged exposure of the milk during transportation to temperatures above 60° Fahr., thus enabling rapid bacterial growth and the formation

given to a baby in the cooler time of the year, in the vast majority of cases we should not find cholera infantum as a result; but I am of opinion that the continued exposure of the infant to high temperature lowers not only the power of resistance, but also the power of digestion. Thus, the intestine falls an easy prey to irritation and infection.

Symptoms.—There is little variation to be found in the symptoms of these cases. Unfortunately, we do not usually see them until the condition of purging and vomiting has become serious. Many cases start with a tendency to vomit, an elevated temperature of from 101° to 102° Fahr., and, lastly, an increase in the number of stools in twenty-four hours. The stool will be found to be thin, usually greenish (depending upon the diet of the child), although sometimes of a brown or yellowish color, usually offensive and slightly acid in odor, and as a general rule, turns green if left standing for from one to four hours, if not that color when expelled. These stools frequently contain shreds of mucus, especially during the more severe period of the disease. As the condition becomes worse, the temperature rises to 104° or 105° Fahr., and in the more severe cases to even as high as 106°. The pulse is somewhat weak and frequent, and the skin will be found to be hot and dry.



Weight September 6, 11 lbs. 10 oz.
9, 11 " 7 "
13, 11 " 9 "
19, 11 " 14 "

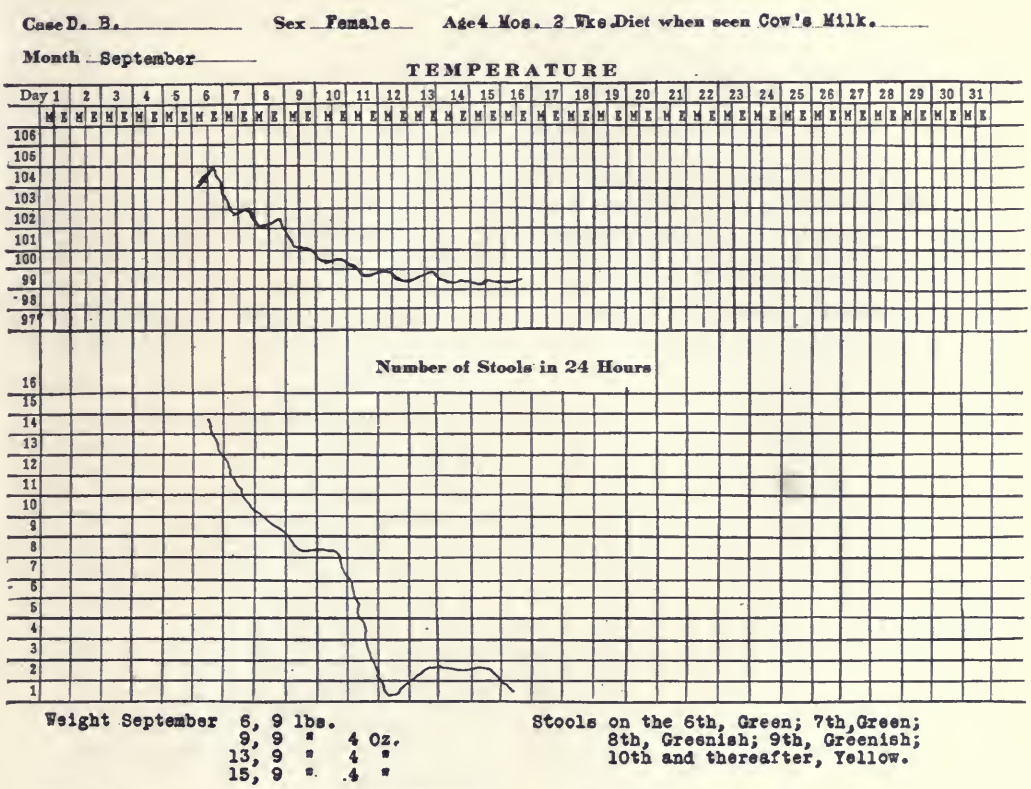
Stools on the 5th and 6th, Green; 7th, Greenish; 8th and thereafter, Yellow.

Child poorly nourished, was under weight at birth (4 lbs. 3 oz.) and development had been slow. Vomiting on 6th, 7th and 8th. Pulse rapid.

Prophylaxis.— There is little, if anything, to be said as regards the prophylaxis in this condition, more than the regular laws of hygiene, which should be observed with every patient. The clothing is, without doubt, an important item, which should be taken into serious consideration. The more the infant suffers from the heat, the less power of resistance it will have. When the temperature

of the air is above 75° Fahr., the baby should not wear more than a soft linen shirt, and a linen or cotton dress, and the usual diaper. The covering over the child will be ample if only a small linen spread. Cool sponge baths are claimed to be of value by many authorities.

Treatment.— The diversity of opinion as to the treatment of these cases is very great. We are told by most pediatricians that it is advisable to discontinue nourishment entirely for from twenty-four to forty-eight hours. In the cases that I have had, I have always thought that the child's vitality was low enough, as a result of the disease, without depriving the system of the necessary nourishment. Having had my experience in pediatrics in London, England, where the theories of the late Dr. Sidney Ringer were taught extensively, it has always been my practice to discontinue milk in any form, and put the patient on a diet of veal or chicken broth, barley water, or, best of all, one of the dried cereal-containing milk foods.



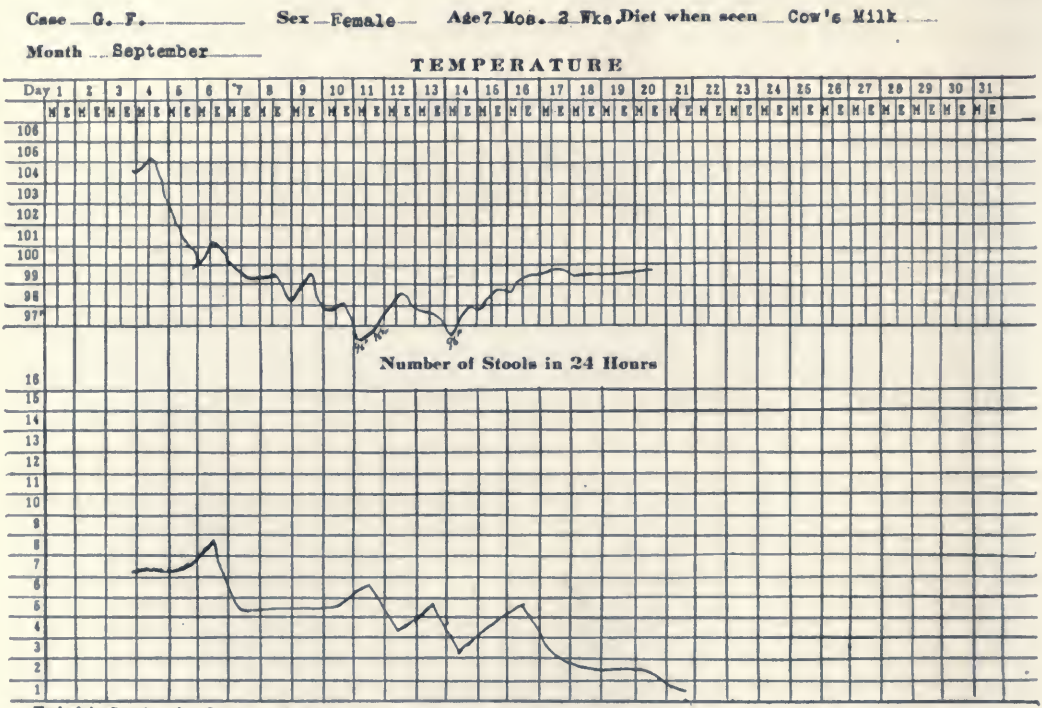
I do not believe in the prolonged use of irrigations, with the exception of perhaps during the first twenty-four hours of treatment, in fact irrigating the colon once or twice with sterile water, at a temperature of 100° Fahr. will accomplish all that is possible and when this procedure is con-

tinued for any length of time, the much-needed strength of the child is unnecessarily exhausted.

There is little to be said for drugs in this condition, with the exception of perhaps small doses of salol or calomel, and one or two dram doses of castor oil every morning, depending on the age of the patient.

The charts attached will show the results in several of the worst cases which I had during the summer of 1912; and, as will be noted, the rapid loss of weight which is usual in these cases, was entirely eliminated, and in some a slight gain was noted. I advise the continuance of the diet until the hot weather is over.

In conclusion, I wish to say that this method of treatment is not original with me, but has been taught for some considerable time, by Seibert and Fischer of New York, many foreign authorities, and has been used successfully by many of the leading pediatricians of this country.



In an injury to the wrist tenderness just distal to the radius and in the "anatomical snuff box" is significant of fracture of the scaphoid.

If a patient with the signs and symptoms of chronic appendicitis is unduly anemic and has lost weight, be prepared for the possibility of a more serious lesion, e. g., neoplasm, ileocecal tuberculosis.—*Amer. Jour. of Surgery.*

THE ROLE OF THE SURGEON IN CERTAIN FORMS OF NOSE AFFECTIONS.

BY

WILLIAM H. NEWCOMB, M. D.,
Attending Physician, Nose and Throat Dept., Post-Graduate Hospital, New York City.

The great importance of oral and nasal hygiene has deeply impressed itself on the minds of the medical profession and laity for some considerable time. The general public has become, or is becoming, educated to the fact that it is a question of the first moment to keep the mouth and nose in a healthy condition. Evidence has accumulated and is accumulating rapidly that the mouth is a fertile breeding ground for diseases of various kinds and it must ever be borne in mind that there is such a close connection between the mouth and nose, that if the nose be in a bad state, the mouth will inevitably be infected therefrom. Of course, the mouth is a veritable hot-bed for the propagation of germs. Even when the mouth is in a normal condition, germs harmful and innocuous abound therein, but so long as it is clean there is little or no fear of infectious microorganisms incubating and developing. But if the mouth be unclean and especially if the teeth and gums be in a bad condition, such a condition is a constant menace to health. Moreover, as stated before, in order to retain the mouth in a healthy state, it is essential that the nose be normal. That is to say, that the orifices are clean and unobstructed, and that there is no collection of more or less purulent matter which may obtain entrance to the throat and work incalculable mischief. The three main functions of the nose are olfactory, respiratory and vocal. The nose is likewise endowed with highly important powers for the defence, not only of the air passages, but of the system generally. The nose, when in a normal state, filters off all dust and microorganisms from the air before these can reach the larynx. Such germs as gain access to the nasal cavity proper, are expelled by the action of the ciliated epithelium, assisted by the trickling of the lachrymal secretion in which they become enmeshed. Before their expulsion is arrested by the nasal mucus which is probably inhibitory if not actively anti-bacterial and leaves them open to attack by phagocytes, hence while microorganisms are abundant at the entrance of the nose, their presence is scanty in its interior and they are practically all filtered off before the air reaches the nasopharynx. Thus it is plainly evident that it is in the highest interests of health that the nose should be kept in the best condition possible. But there are an immense number of noses which are not normal, and it is really extraordinary to observe that a goodly proportion of the population suffer from one form or another of deformity of the nose.

In the Nose and Throat Clinic of the Post Graduate Hospital, I have exceptionally favorable opportunities for judging of the remarkable number of instances in which deformities of the nose occur. Perhaps there are few clinics in the world with a larger attendance than that of the Nose and Throat Clinic of the Post Graduate, nor in which the patients, owing to their conditions of life and cosmopolitan nature, present better material from the clinical standpoint than does this clinic. It goes without saying that in proportion as the individuals suffer from nasal deformities, so do these deformities affect their general health. Grave deformities will, as a rule, seriously, injuriously prejudice a person's

health, while even minor deformities will affect the health to some extent. Therefore, the role of the surgeon in treating nasal deformities is a supremely important one and I argue that just as it is essential to health to have the nose in a healthy condition, so it is necessary to call in the services of a surgeon to bring about this end. Accordingly, it is well within the sphere and province of the nose and throat surgeon to hold himself up as at least one of the chief agents in preserving the general

Fig. 1. Vertical Deflection of the Septum—Arrow indicates point of contact.

health and as by no means an unimportant factor in the scheme of preventative and curative medicine. It will be my object in this paper to discuss deflection or deviation of the nasal septum.

Deformity of the nasal septum is one of the most frequent conditions for which rhinologists are consulted. In fact, the majority of adult patients, suffering from this condition who consult the nose and throat specialist, present some degree of septal deformity, moderate or marked; many such cases are not sufficiently pronounced in character to warrant surgical interference, whereas in other cases the abnormal condition is so evident that operation is not only necessary to promote comfort of nasal respiration, but is essential to insure and maintain the normal standard of health.

The nasal septum partitions or divides the nasal cavity into two fossae or passages, through which the air is inhaled and exhaled, and when in a normal condition are of equal dimensions or approximately so. If the septum is deflected from its

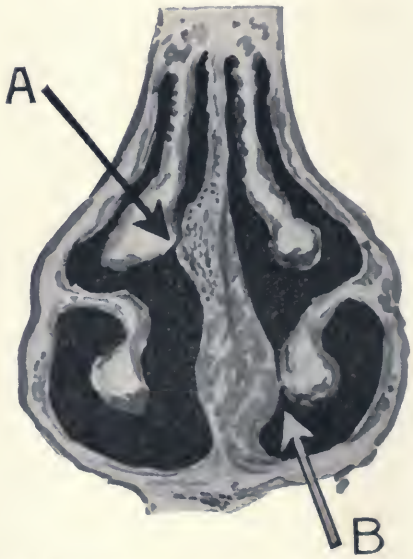


Fig. 2. Horizontal Deflection of Septum—Showing thickening of bone at point of contact "A" and of cartilage at "B."

normal vertical position, it necessarily narrows one fossa and enlarges the other, thereby giving the patient too much air space on one side and too little on the other. Nature requires the nasal passage to be in a perfectly normal condition, as it is through these passages the air is warmed and moistened before entering the lungs. Until the seventh year the nasal septum is, as a rule, in the mesial plane, but after this age is often deflected on one or the other side, the deflection being greatest along the line of junction. It may be said that deflection of the septum is more com-

mon in European than in non-European people.

The nasal septum is composed of cartilage and bone. The cartilage portion of the septum occupies the interval between the vertical plate of the ethnoid bone and vomer, being in contact with the vertical plate of the ethnoid bone at its posterior superior border. It articulates with the anterior nasal spine of the superior maxilla and vomer at the posterior inferior border. The anterior inferior border is attached above to the crest on the under surface of the nasal bones at their junction and is contiguous with the superior

Fig. 3. Sigmoid Deflection of Septum—Arrows indicate points of contact.

lateral cartilage below. The anterior inferior border extends downward and backward and attaches to the anterior nasal spine. The bony portion of the nasal septum is formed by the nasal spine of the frontal bone, the crest of the sphenoid bone, the perpendicular plate of the ethnoid bone, the vomer, the palate bones and the palatal processes of the superior maxilla bones. The anterior third of the septum remains cartilaginous throughout life. The perpendicular plate of the ethnoid ossifies between the first and second years, whereas the vomer begins to ossify about the third month of fetal life and is not complete until puberty. Many factors enter into the cause of deformity of the nasal septum, defective septal development, affections of the septum, affections of other regions in the nose, excessive development of the turbinals. Broadly speaking the principal etiological factors are congenital, traumatic and developmental. The high placed palatal processes of the superior maxilla or so-called gothic arch is a cause of septal deviation and is congenital. The high placed palate crowds the septum upwards displacing it out of its normal vertical position. Deviation also results largely from traumatism. By far the most fre-

Fig. 4. Deviation of Septum to right side.

quent cause of septal deviation, in my opinion, is slight injuries, which bring about but slight displacement of the septum at the time of injury but which set up a low grade of inflammatory action causing hyperplastic changes in the septum some time after resulting in deflection, the septum being deflected in the line of least resistance. I think we too hastily arrive at the conclusion that the cause is congenital simply because we do not obtain a history of injury to septum—obviously the nose is the most prominent organ of the face, it may be termed its outstanding feature and consequently is more liable to injury. Children of a tender age, when

learning to walk, frequently fall striking the nose. At the time little importance is attached to the circumstance, and thus it is quite possible that the septum may be injured more or less seriously without evidence of contusion or any immediate deformity. For infants and young children to fall is a daily happening and in the absence of parents or nurse, it is not surprising we do not obtain more recorded evidence of injury to the septum. In my opinion, the majority of cases of deflected septum in adults are primarily due

Fig. 5. Septum after operation.

to injury or accidents in childhood. Few children escape falls and blows, and unless these are severe, causing marked external injuries, are not noticed. The probability that traumatism is the most common cause of deflected septum is increased by the fact that deviations are much more frequent in males who are more exposed to injuries than females. However, it must be said that such high authorities as Zuckerland, Fletcher, Ingalls and Asch are skeptical as to traumatism being the main cause of septal deviation.

When the cause is developmental the cartilage and bony septum are both involved, when of traumatic origin in the great majority of cases, the deflection is essentially cartilaginous, as the injury is rarely severe enough to involve the bony structure.

Hypertrophied turbinates in children, provided the hypertrophy has advanced to the extent of causing pressure on the septum will in the flexible septum of children cause the septum to deflect to the opposite side. Hypertrophied inferior or middle turbinates in adults are frequently associated with deviations, the hypertrophy in these cases being the result rather than the cause. There are a variety of septal deformities, and it is almost impossible to classify the various forms. The most frequent form is limited to the anterior portion of the cartilage known as the columnar, and presents the deviation at a right angle in the floor of the nose. This variety of deformity is commonly the result of traumatism. A second variety presents an angular deflection, the long axis of the deformity being anterior posterior. It refers to various deformities of the nasal septum in which definite prominences, spurs, ridges and thickening present upon the septum due to a solution of continuity in the structure of the septum. This variety of septal deformity is usually due to injury, the abnormal condition gradually increasing often accompanied by inflammatory changes in the mucous membrane.

These changes in the course of time will develop a deviation of the septum. Another class embraces the kind of deflection where the septum bulges into one side above and into the opposite side below, forming an S shaped deflection.

Septal deformities are amenable to treatment by operative procedure and this is the point that I especially wish to insist upon.

For surgical treatment of deviation of the septum, the method most frequently followed by the majority of rhinologists is submucous resection of the septum. Submucous resection of the septum is one of the greatest achievements of modern rhinology. Several methods are practiced by nose and throat specialists and have been described by various authors. That most generally followed is the one initiated by Prof. Killian of Frieburg. The other methods differ in technical points and may be denominated as modifications. Freer of Chicago employs and advocates what is termed the open method with which he has had considerable success. Ballenger of Chicago has introduced technical improvements of the original method. It would be superfluous to describe at length the technic of so well known an operation. The operation consists in removing the cartilage or cartilage and bones of the septum submucously by leaving the mucous membrane and perichondrium intact. Spurs, ridges and thickening can be removed submucously in most cases but I see no objection to the use of the saw or other means so long in use. As stated before there are septal deflections which do not call for operation, but only those cases in which the abnormal condition of the septum interferes with the proper functions of the nose. The degree of obstruction to respiration is in proportion to the degree of deflection. If the septum is deflected very much to one side, complete occlusion may result. In most cases a nasopharyngeal catarrh is due principally to the interference with the flow of the secretions anteriorly, causing them to flow posteriorly down the pharynx and these are swallowed or expectorated. Frequent attacks of epistaxis are caused by the prominence on the septum pressing against the turbinal body causing erosion. In order to relieve such cases, attention to the septum is needed and operative measures should be resorted to when such a condition is found as is prejudicial to the health. My aim in writing this paper has been to show that it is part of the role of the surgeon to treat nose affections so as to not only relieve the local trouble but to prevent the infection from spreading throughout the system. Thus the rhinologist is a factor of considerable importance in the practice as well as of remedial medicine.

159 West 105th Street.

THE ANNOTATOR.

The Rapid Growth of Open Air Schools.[1]—An editorial tells us that there are now more than 200 open-air schools and fresh air classes for tuberculous and anemic children, as well as for healthy children in certain rooms and grades. These schools are distributed over various portions of the country, all of them having been established since January, 1907, when the first one was opened at Providence, R. I. On January 1, 1910, there were only thirteen in the entire country, but a year later they had increased to twenty-nine.

Their major development is therefore confined to the past two years.

Massachusetts has 86 fresh air schools. Boston alone having 80, New York follows with 29, and Ohio is third with 21.

These schools are now distributed among 50 cities in 19 states. From the statistics of population and mortality which have been prepared by the Census Bureau it has been estimated that 100,000 children who are now in school in the United States will die of tuberculosis before they have reached their eighteenth year.

[1] *Medical Times*, December, 1912.

In other words the annual mortality from this disease among our school children is more than 8,000.

If the average period of schooling for each child were six years the annual loss from wasted education would amount to more than one million dollars.

It is confidently believed that the open air schools will greatly diminish this loss and suffering especially when it becomes possible to provide one of them for every 25,000 of the population.

They are needed most urgently, of course, in the crowded cities.

The Education and Training of Feeble-minded Children in the Public Schools.[1]—Edson submits the following propositions:

1. In every city there are sub-normal children. They can be found if the school authorities and the doctors will only recognize them.

2. In each city there should be a psychological clinic connected, if possible, with the city hospital and controlled by the board of education. This clinic should determine scientifically the degree of mental dulness of sub-normal children. Full clinical records of the patients should be kept and these patients should be assigned to a particular school or a particular task, or else to a state institution.

3. There should be suitably equipped class rooms for such children in school buildings. They should be large, sunny, and accessible to the street, the play ground and the toilet rooms.

4. The number in the classes should not exceed twelve to fifteen, in order that individual or group attention may be given, as may be indicated.

5. Specially qualified teachers must be chosen for this work, for it requires patience, tact, sympathy, and resourcefulness. Such teachers must keep abreast with the progress which is being made in this line of work.

6. There must be love and sympathy in the management, and no nagging, threatening, or punishments.

7. The course of study must emphasize the essentials; it must be flexible and lead directly to a vocation. Teachers must have a free hand in adapting the course of study to the needs of the classes.

8. The instruction must be personal and emphasizing physical and manual training, nature study, and illustrative material.

9. The skilled teacher and the skilled physician must labor, side by side, in this work. Physical defects must be remedied as speedily as possible, the training must be corrective and curative, both along physical and intellectual lines.

10. If school authorities fail in their duty to these unfortunates, if there is lack of funds or of interest, private individuals should be appealed to for the performance of the work, a leader with a well-matured and workable plan is indispensable. This is an interesting problem which cannot be dodged, it must be worked out. These children are with us whether we desire them or not, and it is certainly better economy to fit them for usefulness than to let them grow up a helpless burden to the community for their entire life.

[1] Dr. A. W. Edson, *New York Medical Journal*, December 7, 1912.

Disinfection and Contagion Carriers.[1]—An editorial notes that in the city of Providence disinfection following communicable diseases is no longer compulsory but is done only when it is desired by the family in which the disease has prevailed. Since 1905 disinfection following diphtheria has been discontinued, as a routine measure when two successive negative cultures have been secured from each member of the family concerned. During the years 1901-5 this disease prevailed in 1,457 families in Providence and there were 1.71 per cent of recurrences after disinfection. Since 1905, with no compulsory disinfection, the recurrences have been 1.80 per cent which suggests that recurrence may be independent of disinfection.

It is suggestive that recurrences are not due to germs lurking in the house, but to those which are carried in the throats and nasal passages of various members of the family. Notwithstanding compulsory terminal disinfection .88 per cent of those who afterward had the disease were away from home while diphtheria was in the home and until after the disinfecting meas-

[1] *Medical Review of Reviews*, December, 1912.

ures had been carried out. Only .14 per cent of those who were similarly away from home during the period since compulsory disinfection was abandoned, contracted the disease. With regard to scarlet fever during the six years previous to 1909, the rate of recurrence with terminal disinfection, was 1.48 per cent, while in the four years which followed its abandonment the rate of recurrence was 1.61 per cent. The health officer of Providence during this period was Dr. C. C. Chapin, and it is thought that these results may mean a great saving in municipal funds. Anderson and Goldberger have shown that infectivity of measles depends upon the particles of tissue thrown off during sneezing and coughing and not upon general desquamation. Such discharges dry rapidly and drying favors loss of virulence, hence safeguards should be provided during the incipient stage of measles, rather than by terminal disinfection.

Disinfection after a communicable disease is of diminished importance if quarantine and isolation have been enforced during the course of the disease. The danger from carriers is therefore greater than from fomites. Personal contact with communicable disease should be diminished. Personal hygiene with disinfection of the nose and throat is more rational than house disinfection as at present carried out. Still we hope there are not many health officers who are as courageous as the one in Providence and who will take the chances which he seems to have taken. We are not convinced by his figures. Perhaps he will also tell us that rooms in tenement houses which have been occupied by the tuberculous are also innocuous and do not require disinfection.

Effect of Present Prevention on the Spread of Consumption.[1]— Mays thinks that inasmuch as very active measures for the eradication of pulmonary consumption have been in force for ten or fifteen years we ought to begin to see some positive results in the diminished number of cases.

We must not forget, however, that improved sanitary measures alone, resulting from wise legislation have been a potent factor in reducing the death rate from this disease, irrespective of any specific preventive measures. The rational means of preventing consumption consist practically in inculcation of the fundamental principles of hygiene. Such principles will include the use of wholesome and properly prepared food, avoidance of damp, ill ventilated, overcrowded dwellings, suitable clothing, and personal and domestic cleanliness. They will include furthermore the avoidance of overwork and strain. Trades, agricultural and mechanical occupations should be taught to boys and domestic economy, cooking, sewing and the proper care of a home should be taught to girls.

The hygiene of the home, workshop and factory includes ventilation, temperature and general cleanliness, and all these things must be carefully inculcated. Care must be taken when there are colds and coughs which are apparently trivial, and accidents and all other physical mishaps must receive efficient medical attention, nursing and medication.

Insurance against sickness and accident is recommended and a sufficient number of sanitary tenement houses should be erected for the poor, the profits from which should be applied to the erection of other buildings of a similar nature.

[1] *Medical Record*, November 30, 1912.

Elimination.[1]— The editor mentions the different organs of elimination and their way of performing their function.

In respiration he states that the explanation of the current movement of CO_2 and O is found in the difference in their volume and pressure. They form true chemical compounds when their pressure is high and the compounds are broken up when the pressure is lowered. The O and CO_2 being in loose combination with hemoglobin are easily affected by the carrying pressure to which the blood is subjected. The pressure CO_2 in the blood in the lungs is higher than in the air sacs and it is therefore forced into the air sacs, while in the body the pressure of CO_2 in the tissues is higher than in the blood and hence it is forced into the blood vessels.

The daily elimination work of the kidneys is of water 50 ounces, urea 500 grains, and uric acid 7 grains.

[1] *American Practitioner*, December, 1912.

The quantity of water is in direct relation with the pressure of the blood in the renal arteries and the glomeruli.

The epithelium also exerts positive and negative influence, positive in secreting some of the salts of the urine, and negative in preventing the serum albumin of the blood from passing through. Urea is formed through metabolism of the tissues, an adult man secreting enough of this material in two days to cause death from uremia.

Secretion of sweat is not only filtration but is dependent on the action of nerves on the gland cells. It supplements the kidneys and carries off medicines and poisonous vapors.

Feces contain deleterious substances formed within the body in addition to undigested food substances. Menstruation eliminates useless blood, the unusued ovum, epithelium and mucus from uterine glands and prepares the way for new blood, a fresh ovum, and a new endometrium. The lochial discharge consists of clots, membrane and dead epithelium. The eliminants are the expectorants, diuretics, diaphoretics, and purgatives. Examples of the first are ammonium chloride, apomorphine and creasote. Diuretics are caffein, digitalis and squill. Pilocarpin is the most important of the diaphoretics. Calomel, cascara, castor oil, senna and the hydragogins are well-known purgatives.

Elimination may also be effected by massage, hot air, and hot baths.

TREATMENT.

The Friedmann Treatment of Tuberculosis.[1]—This matter was discussed at a meeting of the Berlin Medical Society. Hr. Friedmann on the occasion added somewhat to his previous pronouncement. He repeated that he had not said what his curative material consisted in. Whether he will act up to the traditions of the noblest of professions, or as a quack—keep his secret and *sell* it to the highest bidder, and so make a fortune for himself out of it, still remains to be seen. "I have thoroughly tested many and many a kind of avirulent cultures, also such as were obtained from the human subject, that had been rendered avirulent by various methods, but I have quite given them up."

In fact, he had made use of the most varied nonvirulent kinds—those from warm-blooded animals that had been made avirulent, others from the most diverse cold-blooded ones. In 1903 he had published results of investigations into tortoise tubercle. In 1904 he made a further communication on a second tortoise strain. If the first strain was only slightly virulent, it set up nodules in the guinea-pig that never led to tuberculosis; still the nodules could be felt year after year. A third strain was discovered, a natural one that showed avirulence in a high degree, and concerning this he had never published anything. Even in its natural state it was perfectly harmless for guinea-pigs, it caused scarcely any nodules, and in a short time it lost the last trace of virulence. He then used the preparation more extensively, and on the human subject. His preparation was, therefore, perfectly harmless for guinea-pigs. Animals that had been injected two and three years were perfectly sound and free from nodules. He might also state that he had experimented with other cold-blooded animals, fish, salamanders, blind worms, snakes, also with other tortoises, but, without exception, with results that were not good.

Hr. Erich Müller said they had just heard from Hr. Friedmann that his form of bacillus was not from the human subject or from cattle, but from some cold-blooded animal, the bacilli from which were quite avirulent for man. The recoveries he had seen were such as were not possible by any other known means. He believed also that children injected would be safe from infection. A child shown by Friedmann was very remarkable. Like many similar cases, it showed the harmlessness of the injection, and spoke strongly in favor of the protecting power of the preparation in that in the midst of a tuberculous milieu it had remained free from the infection. The protective inoculation had been then made about a year. For the future—the immediate future, at any rate—they would limit their injections to children that were ill.

Hr. Kausch would ask them to restrain their enthusiasm for the present, and bear in mind Koch's first pronouncement and salvarsan in syphilis.

Hr. Plorskowski related some details of the work he had done for and with Friedmann, and concluded that the culture, some of which he had brought with him to show, looked exactly like human tubercle, and behaved exactly like it in the incubation oven. For that reason he believed that the tubercle from the great tortoise of the Berlin aquarium was of human origin, and was to be reckoned as of the typus humanus.

Hr. Aronsohn would like to know the dose given by Friedmann—i. e., the number of bacilli he injected. He could only understand by the simultaneous method that a smaller dose than usual was given in each, and that the absence of abscess formation was due to the smaller quantity injected.

Hr. Wolff-Eisner said that no proof had been brought forward that the injections were harmless. In that short time it was impossible to say that they were harmless. It was also pos-

[1] *Med. Press and Circular*, Dec. 18, 1912.

sible that some of the cases recorded as cured were not really cases of active tuberculosis.

Hr. F. Meyer would like to know whether Friedmann had submitted his cases of cure to the tuberculin test. The cases that had been shown would have got better by tuberculin treatment. He could not take it that Friedmann had said that they were cured. He would raise an energetic protest against protective injections, both on ethical and scientific grounds.

Hr. Bier had seen a number of Friedmann's cases. He must confess that he had received the impression that there was a decided curative action, but he had not so far seen any decisive proof.

Hr. Schwenk said that he could not altogether agree with what Friedmann had said. There was one case which his colleague (Hr. Friedmann) had described as cured. He (Hr. Schwenk) had seen the case the day before. There was no question whatever of a cure, nor even of improvement. The patient was sent to Friedmann in 1911. She had about six injections. In August of last year she was again under treatment, and had two injections. She reacted with a universal urticaria, which lasted for several days. She was no better.

Hr. Katzenstein said that in surgical cases of moderate degree we had in tuberculin such an excellent remedy that we had no occasion to have recourse to an unknown remedy.

The Technique of the Operation for Lacerated Cervix.[1]—The desirability of repairing cervical lacerations as a prophylactic measure against cancer needs no comment. As it is an operation every practicing physician may be called upon to perform the following description of the technique is exceedingly interesting:

An anesthetist and one assistant are necessary; two assistants are better. Lithotomy position. If two assistants besides anesthetist, no leg-holders for patient need be used; if one assistant, use leg-holders. Chief assistant is on operator's right, holding patient's left thigh.

Instruments: Two tenacula, one double tenaculum, uterine sound, uterine curette, Wylie uterine dilator, irrigating bag, tube and nozzle with control, bistoury with narrow blade, long-handled uterine scissors curved on the flat; medium sized, full curved, stout needles; needle holder, silk worm gut (a double carrying thread of linen a foot long, should be fitted to each needle), one dozen hemostatic forceps.

1. By means of the tenacula seize the lips of the cervix, and by folding together, try to reconstruct the cervix as it was before laceration. Find the situation of the uterine canal with the sound and by observing the arbor vitæ of the cervical mucous membrane.

2. Fix the double tenaculum in the center of the anterior lip, *i. e.*, in the mucous membrane of the canal—and hand it to the assistant to hold.

3. Pass the blades of the dilators into the uterine cavity. If it is very tight, Hank's dilators must be passed before the blades of the Wylie dilator will pass. Dilate gradually, occupying at least ten minutes. Stretch the tissues and wait for the uterine muscle to become tired; then stretch a little more.

4. Curette the uterine cavity, remembering that it is a flattened isosceles triangle in shape, and that it has only anterior and posterior walls. Go over both walls and the regions of the uterine horns. Rinse out uterine cavity with irrigating tube. If there is much oozing, use very hot water in irrigating bag.

5. Mark out with scalpel the lines of incisions to be made in both lips of cervix, leaving along the line of the arbor vitæ a strip of mucous membrane one centimeter wide, with which to line the canal of the cervix.

6. Seize the tip of one strip of tissue to be removed on the crown of the posterior lip with a tenaculum, and cut out the tissue up to the angle between the anterior and posterior lips with the uterine scissors. Repeat with the anterior strip.

7. Cut out a wedge-shaped piece of hard tissue in each angle after seizing it with the tenaculum. Irrigate. (Excessive oozing may be checked by seizing the bleeding point with a hemostatic forceps, or by passing and tying a suture).

8. Take needle in needle forceps, steady cervix by burying tenaculum in denuded surface, and pass needle from outside into mucous membrane of canal, well above angle in vagina, on right side until its point emerges just in edge of mucous membrane of anterior lip in the canal. Seize and pull through. Re-insert in the canal in lower edge of mucous membrane of lower lip, and pass through tissues of cervix until it comes out in a corresponding spot above and posterior to the angle of vagina. This stitch should be passed deeply so as to include space left by the removal of the wedge of tissue.

9. Put strand of worm-gut in loop of carrying thread, and pull through; make both ends even; catch in a hemostatic forceps; lock forceps, and hand to assistant to hold.

10. Repeat procedure, placing stitches about one centimeter apart until the crown of the cervix is reached.

11. Do the same on left side, placing both ends of each strand of worm-gut in a separate pair of hemostatic forceps as soon as placed. From three to five sutures, depending on the length of the lacerations, are generally needed on each side in the case of bilateral tears.

12. Separate both lips by tenacula and irrigate among the sutures.

13. Separate the topmost suture in the left side from the others by means of a tenaculum. Hand all the rest of the forceps holding sutures to the assistant to hold. Take off forceps from topmost suture, and bring lips of wound together and tie suture, not too tightly. Reapply forceps and hand to assistant.

14. Repeat with remaining sutures on left side, working from above towards crown of cervix.

[1] W. L. Burrage, M. D., Boston, Mass., *Med. Council*, Nov., 1912.

15. Do same on right side.

16. Cut off all sutures so that the ends are two or three centimeters long, and remove double tenaculum.

The Treatment of Acute Suppurative Tenosynovitis of the Finger.[1]—Kanavel, in discussing the treatment of acute tenosynovitis of the finger states that very commonly, when a finger is infected, it is some days before the tendon sheath becomes involved; again, it may be early, and when it is invaded the symptoms develop rapidly because, as was mentioned above, there is so little resistance that the infection spreads throughout the sheath in a short time. However, during the preliminary stage, much may be done to prevent a spread into the sheath. The best sort of application is undoubtedly some form of moist, hot dressing. Boric acid solution in saturated strength is most commonly used, but any of the other solutions in common use are probably just as efficient. Carbolic acid dressing in any form should be avoided because of the danger of gangrene. Local painting with ichthyol, iodine, and such irritating solutions is absolutely useless. German surgeons speak highly of 95 per cent. alcohol dressings left on twenty-four hours. They probably are no more efficient than the hot boric solution, and are always a source of some anxiety, owing to the possible danger of their catching fire, as the author has personal knowledge of in one case. Probably the next most essential procedure is to keep the part at rest; this, of course, is indicated in any infection, since the muscular action tends to disseminate the germs, thus extending the area to be walled off by the leukocytes carried in by the dilatation of the vessels incident to the hot dressings. Elevation of the part is recommended by many, but personally I could never see any advantage in it except to make the arm comfortable, and it is true the elevation of the hand is sometimes necessary for this. If the infection is severe, put the patient in bed. An ice bag in the axilla may help some. Keep the bowels open and the kidneys active. Preserve the nutrition of the patient. The methods of Bier and Klapp are discussed above.

Indicanuria.[2]—The cure for indicanuria, says Morgan, must come through measures preventing the formation of toxins and the elimination of those already formed. In the treatment it is necessary first to eliminate if possible the primary cause of the excessive putrefaction and to prescribe treatment for any disorder of the gastro-intestinal canal whether causative or associated with the production of indican. Further consideration will not be paid to this, as it includes the treatment of nearly all of the gastro-intestinal disorders. In a not inconsiderable number of the cases the excessive production of indican ceased without direct measures being instituted for its treatment when the mental strain was removed; other cases have taxed our ability to the utmost before they have responded to treatment.

Measures directed toward the putrefaction and indicanuria itself consist of general hygienic directions, diet, exercise, irrigation, and occasional medication. Purgatives not only do not cause a diminution of the indican, but may even be followed by increased excretion. Irrigations are nearly always found necessary when direct treatment for the indicanuria is needed. Different solutions have been used to meet varying conditions in my series. Salt solution, soda, argyrol, and ichthyol have all given admirable results. Ichthyol solutions often seem effective when others have failed.

In arranging the diet we have greatly reduced the proteid food, thereby removing much of the material available for the putrefaction. Frequent changes in diet have been tried, with the idea of producing unfavorable conditions for the growth of the putrefactive bacteria. Although buttermilk has been given to many, the writer's experience with it, and the artificial preparations of the lactic acid bacilli has not been such as to cause any reliance to be placed in these preparations *per se*.

No one point has been found to be of more importance in those many cases where overwork is a factor than a restoration of nerve tone, as by a vacation spent under ideal conditions in the mountains. Morgan states that some of his patients have indicanuria which recurs with some degree of regularity in the spring, and disappears after a thorough bodily and mental rest.

---

[1]From Infections of the Hand, published by Lea and Febiger, Phila.

[2]Wm. Gerry Morgan, M. D., *Am. Jour. of Med. Sciences*, Nov., 1912.

HYGIENE AND DIETETICS.

Modified Cow's Milk as a Substitute Food in Infant Feeding.[1]—The author emphasizes the necessity of using pure cow's milk, not milk that has been pasteurized or sterilized, but fresh, wholesome milk from a healthy herd. It is a recognized fact that the milk offered for sale in the large cities is not as pure as it should be, but under the active work of the Boards of Health and the medical profession, it is rapidly improving in quality. When procurable, certified milk should always be used.

Dr. Fitch points out the fact that the modification of cow's milk with a cereal is a mechanical one due to the gelatinized starch, which changes the hard curdling cow's milk into a soft curdling milk like human milk. The casein of cow's milk clots in hard lumpy masses in the infant stomach, the digestive enzymes cannot get at it, and any means whereby we can break up the clot and make it more floccu-

[1]Dr. E. W. Fitch, *Pediatrics*, Oct., 1912.

lent, will increase the digestibility of the milk; and this can be done by the use of a properly prepared cereal decoction.

Not only do cereals modify the casein of cow's milk but they, also, through their gelatinized starch, facilitate the digestion of fats, by emulsifying the fats after proteid digestion in the stomach. This is important because as Holt shows, the tendency today is to give a large percentage of fat, and the fats of cow's milk are more difficult to digest than the fats of human milk. With many infants it is often necessary to begin with an amount less than two per cent. of fat, and rarely is it necessary to exceed four per cent. There are numerous healthy infants who cannot even digest four per cent. of fat at any time, and many during the hot weather do better on a reduction to 3 or 3.5 per cent.

Theoretically, the child under six months, because of the deficiency of salivary and pancreatic secretions is said to be incapable of digesting starches. Practically this is not true. Nearly every fluid in the human economy has a diastatic ferment and as a matter of fact the very young infant does digest starch. We have seen too many babies successfully fed on arrow root to deny this fact. The author quotes Finkelstein, of Berlin, whose experience and general sound judgment are respected by the leading pediatricians of the world, who is emphatic that very young children are capable of digesting starches, and quotes favorable published opinion by Jacobi, Epstein, Schmid, Minard, Keller, Newman, Heubner and others, while our own Kerley has conclusively shown by his experiments at the New York Infant Asylum, that "There is no age limit for cooked starch feeding."

The addition of cereals to cow's milk is not only allowable, but is to be most warmly recommended, not only in older, but also, in very young infants. The advantages of cereal modifications, in addition to the readier digestion and gain in weight, are to be found in the finer sub-division of the casein in the stomach, in the emulsification of the fat, in the disappearance of soapy and dyspeptic stools, in the proteid-sparing power afforded by the cereals, and finally, in the general increment of growth.

Maltose in Infant Feeding.[1]—There are three sugars commonly used in infant feeding, lactose, saccharose and maltose. Maltose is rarely used in its pure form, the malt sugars being in reality a combination of maltose and dextrin. These sugars are all disaccharides. The disaccharides are not absorbed as such, but are first broken down into their respective monosaccharides by special ferments. If an excessive amount of a disaccharide is introduced into the intestine, or if there is a lesion of the intestinal wall, it will pass into the circulation before it is broken down into the monosaccharide. Under these conditions all the lactose, and the major portion of the saccharose are eliminated in the urine. The rest of the saccharose is eliminated through the gastric mucosa, the salivary glands, and in the bile. The maltose on the other hand is broken down by the maltose of the blood, and unless in great excess, is retained. Maltose is the most quickly absorbed of the three disaccharides, saccharose next, and lactose much less rapidly. When the disaccharides are added to a food which contains little or no sugar there is a rapid increase in weight, owing to the lessened elimination of water by the kidneys. The gain in weight is more rapid with maltose and saccharose than with lactose, probably because of the more rapid absorption of these sugars. It seems to be doubtful whether sugars will cause a rise in temperature of themselves. They may cause a diarrhea and then there is almost certain to be some temperature. The disaccharides are all fermentable. Lactose undergoes lactic acid fermentation more readily than the other sugars. Saccharose undergoes alcoholic fermentation most easily and butyric acid fermentation next most readily, while maltose is especially prone to butyric fermentation and next to alcoholic. Lactose and maltose have a slightly laxative and saccharose a slightly constipating action. The probable explanation of the greater frequency with which lactose causes diarrhea is its relatively slow absorption. It is of great importance in order to maintain the normal fecal flora, to have a considerable amount of sugar in the food of babies fed on mixtures of cow's milk. Lactose favors especially the development of B. bifidus, which is normally the predominant organism in the large intestine, while maltose is especially conducive to the growth of the B. acidophilus, which, although present normally in small numbers, if present in large numbers is liable to produce an excessive degree of acidity which may cause irritation of the intestine and an intolerance for sugar. Lactose is therefore, under normal conditions, preferable to maltose. Dr. Morse's chief criticism of Finkelstein's "Eiweiss" milk is that it is too routine, for after all all babies should not be treated in the same way or given the same food without regard to their individual digestive capacities. He does, however, take advantage of the main principles of this method. It is possible by using mixtures of precipitated casein, water and cream to obtain any desired percentage of fat and casein with extremely low percentages of lactose and salts. Any of the dextrin-maltose preparations can then be used in any quantity desired. Those cases in which the trouble is primarily due to bacteria do not do well on this method of treatment. The products of putrefaction are toxic in character. The diarrhea due to organisms which produce toxic substances from the proteids should be treated with an excess of fermentable carbohydrates to change the character of the bacterial activity. Dr. Morse concludes that lactose is for many reasons preferable to maltose for the feeding of normal infants. Where there is excessive fermentation of sugar with consequent intestinal indigestion, maltose is better borne

[1] *The Practitioner*, London, July, 1912.

during the convalescent stage than lactose. Maltose is contraindicated in the treatment of diarrhea due to the gas bacillus and similar organisms, and is less useful than lactose in the treatment of those caused by the dysentery bacillus.

SOCIETY PROCEEDINGS.

THE EASTERN MEDICAL SOCIETY OF THE CITY OF NEW YORK.

Regular Meeting, January 10th, 1913.

EXECUTIVE SESSION.

The Executive Session was devoted largely to the transaction of routine business.

The President, Dr. Joseph Barsky, addressed the Society as follows:

WHITHER ARE WE DRIFTING?

It is customary for the President of the organization in assuming the Chair to make a few remarks which he thinks are of some moment to its members. With your permission, I will adhere to the custom of my predecessors and will put my remarks in the form of a few questions leaving the answers to each individual member.

The question of the present day which is of the utmost importance and upon which all our interest largely centers is that of the economic conditions of our individual members. In other words how can we make both ends meet at the end of the month or year? This is a vital question, one that demands solution and must be solved. It takes precedence over everything else and, unless a just and correct solution is arrived at, it will creep up again and again with disastrous results.

I take it for granted that we are all interested in this problem and are cognizant of the fact that the struggle for existence today is greater than at any other time in the world's history, not that the actual conditions are worse, far be it from that, but that our demands have increased through our intellectual development out of all proportion to our present physical ability to satisfy them; hence the general unrest and complaint.

Now what are we as a body doing to meet these demands? We are fully aware of the fact that this economic question is not confined merely to the members of the medical profession as such, but that it is general and concerns all civilized communities, and we can improve our conditions only by improving the conditions of all.

Are we giving it due consideration? Please remember that we cannot improve our condition as the trade unions improve theirs, namely by increasing their own incomes at the expense of others. If we wish to improve our conditions, we must put our shoulders to the wheel and take our places in the ranks of the coming soldier and battle on an equal footing with him. We must do our utmost in this strife and never cease until the battle is won and we have attained what is in our belief justice for all. We must give a helping hand to the general movement which has for its aim the physical and moral uplift of society. Are we doing our share of work or are we waiting for the other fellow to do it for us and then share with us the benefits in common? Are we to be merely passive onlookers? Upon your correct answers to these questions depends our well being.

To be sure there are ills which are exclusively medical, so to speak, and a remedy for which could be easily found if we were in real earnest and determined to do so. For instance, take the hospital and dispensary abuses. What are we doing to eradicate these evils? I'll tell you. Committees are appointed to investigate and report. In a short time we get reports substantiating all the charges set forth, and lo and behold, before the ink has had time to dry on the paper, we discover in all our daily newspapers that there is an epidemic of hospitals.

From every part of our fair city we hear this epidemic is spreading like wildfire. Balls, fairs, theatricals, sociables, and card parties are organized to raise funds to establish new hospitals all over the city. I personally know a very charming and charitable young lady who danced herself sick for the benefit of a new hospital, where she assured me that the poor unfortunate sick babies would be better cared for than in the old hospital. I have a grave suspicion that the present epidemic has not originated in the mind of the lay public. As far as I know, children are not crying for hospitals, nor do mothers want them, nor fathers like them. It would be interesting to know how and from where the poor public received this inspiration.

Now we are certain of the evils that the hospitals are creating. We all protest against them. We organize for the purpose of curing these evils and what are we doing? *We build more hospitals.*

SCIENTIFIC SESSION

A. *Report and Presentation of Cases.*

1. Chronic Constipation, Dr. J. W. Weinstein.
2. Pregnancy with Hydramnios, Dr. S. J. Druskin.
3. Dystocia Musculorum Deformans, Dr. H. Climenko.
4. Removal of Orbital Tumor by Kronlein Operation, Dr. Otto Schirmer.

B. *Symposium on Pneumonia.*

1. Diagnosis and Differential Diagnosis, Dr. Charles E. Nammack.
2. Characteristics in Children, Dr. Henry Helman.
3. Treatment, Dr. Maurice Packard.

The papers were discussed by Drs. Herman Schwarz, Maurice Fishberg, M. Stark and S. Spiegel.

The Society then adjourned to the discussion of a collation served by the Cafe Boulevard.

b9

American Medicine

H. EDWIN LEWIS, M. D., *Managing Editor.*
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.
Copyrighted by the American Medical Publishing Co., 1913.

Complete Series, Vol. XIX, No. 2.
New Series, Vol. VIII, No. 2. FEBRUARY, 1913. $1.00 YEARLY in advance.

The principles of medical ethics adopted by the American Medical Association, are recommended for careful perusal by everyone whether or not he is a member of the Association or may already know their substance. In our dealings with each other they inculcate the idea of doing to others as we would have others do to us and always of course in a gentlemanly way. The perfect gentleman has yet to be born and we who are less than perfect must realize that we constantly tend to do some things we ought not to do and omit others we should have done and that "there is no health or perfection in us." For that reason we must be on constant guard lest we do what would hurt us if done by some one else. In other words the code is an ideal towards which we strive and though we constantly get nearer to it we may never reach it. Let us then be a little charitable to those who are so "unprofessional" as to violate the code in some of its details. For instance, it says that, "when an epidemic prevails, a physician must continue his labors for the alleviation of suffering people, without regard to the risk to his own health or life or to financial reward." If he should die in this alleged duty and leave a widow and several small children dependent on charity, we doubt very much whether he has done right. The greatest good to the greatest number is a good test in such matters of casuistry and we are quite sure by that criterion that a man who cares more for his own health and efficiency does far more good to far more patients than he who dies for a few. Besides, charity begins at home. An ideal code does not cause more distress than it relieves. Would it not be wise then to temper this provision of the code a little? Would it not be better to make our ideal a bit more attainable? We strongly approve the rule making it unprofessional conduct to fail to obey the law to report to the authorities any notifiable diseases. The public are now too well educated to object to this course and dismiss a physician who will not save them certain inconveniences by hiding contagious diseases. Fear of losing one's practice may have once been an extenuating circumstance for this misdemeanor, but it is so no longer. Indeed he who needlessly risks public health is liable to suffer. There is, then, no acceptable excuse for failure to keep health authorities promptly informed as to notifiable diseases.

The defect of all codes of medical ethics is that they overlook that medicine is a calling by which we earn a living. Civilization is based on the fact that everyone is doing something to benefit others while he is supporting himself. If anyone attempts to gain subsistence in any way which is not reflexly beneficial to others, he is liable to end up in prison. It is nonsense to claim

that any one of the lawful callings is primarily for the good of the public. Like every other bargain, it is beneficial to both sides, and they all survive because of this mutual benefit. Shoemaking would disappear if shoes were no longer beneficial, and the trade arose because of its necessity. All men cannot make their own shoes or medicines and must pay someone else to do both for them. Our old claim that the profession of healing is the only purely altruistic one, in which the selfish consideration of making a living does not appear except as an incident, is simply untrue. The physician who does not insist on his fees for keeping patients healthy is as foolish as a shoemaker who will give away shoes for the pleasure of keeping people well shod. Our profession is not then "primarily for the good of the public" to any greater extent than any other trade or profession, and it is high time we throw off the smug hypocrisy which only creates ridicule. Medicine is a mutual affair and cannot exist in a pure healthy state unless it is beneficial to both doctor and patient—neither good being the primary one. Pure altruism is as harmful as pure egoism and we must not pretend to be what we cannot be. There is no question that we have suffered dreadfully by our false position. Millions of people take us at our word and see no wrong in their failure to pay the doctor even if they know his children are suffering for the comforts of life if not its necessities. They really think it his duty to heal them without pay. Our unwise attitude even creates a sort of pauperism as seen in the abuse of dispensaries by people clothed in expensive furs. In this respect our code is far from ideal. It must be modified so that violation of its provisions is more difficult than observance—that is, it must be a practical guide, not an unattainable ideal. Let us acknowledge that we are trying to support ourselves and families and not primarily the families of other men. Except in emergencies, to which all men respond whether they are doctors or not, let it be distinctly understood that the doctor must be paid for his work—all of it. When the code says this, it will be more respected and less often violated. Let it distinctly state that a man is no more entitled to free medical care than he is to free shoes. If there is any primary purpose of practicing medicine it is the purpose of making a living.

Our dreadful accident record seems to be getting worse instead of better—at least in New York City. We are informed that every day there are about two people killed and six injured in the streets by automobiles, wagons and cars. The whole state outside of the city has fewer injured and less than half the killed, though we are justified in doubting the accuracy of the rural statistics since it is impracticable to get reports of every accident. European papers comment, with something like horror, on the number of people killed and injured by our railroads—probably 30 a day killed on an average and the wounded counted by hundreds. Ninety per cent. of this bloodshed is unnecessary. It has been reported that safety appliances introduced into the shops of the Pennsylvania Railroad employing 50,000 workmen, have reduced the monthly accidents from 300 to 100. We are quite sure that the remaining hundred can be largely reduced, though we are equally sure that at least ten per cent. of our deaths are due to the foolishness of the workers themselves. Such deaths have always occurred—on the farm and in our

nomad and hunting stage of existence. It is nature's way of eliminating old types unfit for new environments. We need not worry over these suicides from stupidity, but we ought to worry a great deal over the ninety who are destroyed through no fault of their own, but through our fault in not compelling employers, including railroads, to adopt safety appliances and methods. In time we may evolve a type of baby which will not run out in the streets in front of cars and wagons, but it will be a very very long time and cost too much in life. Evolution of man has proceeded in the opposite direction of an increasing helplessness in infancy and increasing care by parents. As it is practically impossible, as well as unwholesome, to keep all children housed and off the streets, we must keep vehicles off certain streets and reduce speed. We must do something and do it soon, for at a rough estimate there are now about one million unnecessary cases of accidents needing surgical care every year—perhaps much more than a million. No wonder we have more doctors per thousand population than any other nation in the world. We need them.

Mr. Lloyd George has scored in the first round of his fight with the medical profession of Great Britain over the Insurance Act, but he has done so only by a series of "foul blows." On Nov. 20th, 1912, the representative meeting of the British Medical Association (the analogue of the House of Delegates, A. M. A.) decided to refuse to render service under the terms of the act. Thereupon district after district throughout the country voted not to "go on the panel," that is, that the members should abstain from enrolling themselves on the list of doctors willing to serve on the panels opened by the local Insurance Committees. This decision was further confirmed by the representative body on Dec. 21st, by 182 votes to 21. When the time came for closing the first list of "panel doctors," on Dec. 31, 1912, it was found that almost all over the country the lists were hopelessly incomplete, and in several cases did not contain the name of a single doctor. Moreover, it was obvious that the greater part of those who had enrolled were the ne'er-do-wells of the profession, and that most of the better class of general practitioners who had anything of a private practice held aloof on several grounds. Apart altogether from the question of inadequate remuneration, the panel doctor's relations with his patient are interfered with by the control of the local Insurance Committees (lay bodies on which the Friendly Societies have by statute a permanent majority of three-fifths). *Secondly,* the incidental clerical work of practice—for which since the private practitioner is responsible to no one but himself he can always postpone to a convenient occasion, the resulting loss or inconvenience being entirely his own—becomes a dread responsibility when it is made by statute an obligation to the state and may come into conflict with the demands of practice. *Thirdly,* the fact that the act requires all service to the insured to be rendered personally and not delegated to assistants may easily make it necessary in busy seasons for the doctor to leave his private patients to the care of assistants while he devotes himself to his insured "club patients." In this light it would tend to be destructive of the best class of general practice. *Finally,* the injustice of an absence of any income limit for the insured, save in the case of clerical occupations, whereby many who have always paid

good fees become entitled to compulsory attendance for $1.75 per annum, the attendance including venereal diseases, drunkenness, all except major surgery, miscarriage, etc., hitherto excluded from all contract practice, was bitterly resented. For these and other reasons the great bulk of the better class of general practitioners held aloof and declined service under the act.

Then Mr. Lloyd George struck below the belt. In a speech on Jan. 2nd, before the Advisory Committee to the Insurance Commissioners—the absolute and paramount authority under the act—he detailed the measures that would be adopted to crush down resistance if practitioners still refused to serve on the panel. Where the panel was more or less adequate the Insurance Commissioners he said, would close it against resisting local doctors and invite those doctors already on it to take a sufficient number of assistants to enable them to carry on the work, the panels to remain closed in that area long enough to enable the panel doctors to secure all the practice among the insured from their protesting confrères, or a sufficient number of medical men ["blacklegs"] would be sent to start practice in any area where their services might be required for the insured, the panel being meanwhile closed, as before, to give them the opportunity of making good their footing among the insured and incidentally of establishing a private practice at the expense of their professional brethren. Finally, in districts where no panel could be formed, whole time doctors could be sent on a salary of from $2,500 to $3,500 a year to attend solely to the insured, but with the privilege of engaging in private practice among the families of the insured alone.

In the industrial districts of large cities it was recognized that these autocratic measures would entail not merely serious loss, but absolute ruin, on those at the time in practice there, inasmuch as in such districts anywhere from 75 to 100 per cent. of the patients were found to be now compulsorily insured persons. All over the country, therefore, a stampede ensued, and in district after district the doctors, some on their own account, many more out of consideration for their fellows thus circumstanced, voted to take service, but in most instances expressed in their resolutions their bitter resentment against the unscrupulous and dishonorable tactics employed to enforce service under the act.

Mr. Lloyd George had thus repudiated every promise he had made, and every principle he had laid down when advocating his bill. By the act, every legal practitioner is entitled at any time to go on the panel; yet, to punish those doctors who were not willing to enslave themselves, he would close the panels to them, and give a monopoly to "blackleg" doctors devoid of every vestige of professional honor. By the act, all service must be rendered personally by the panel doctor himself and not by means of assistants; yet Mr. Lloyd George, to gain his own ends, would in certain districts authorize the wholesale employment of assistants, who apparently were not even to be selected by the doctors who employed them, but sent down by the central authority. By Mr. Lloyd George's repeated promise, every insured person was to be "free to go to the doctor of his choice," subject to the latter's acceptance of him as a patient; but his choice is now to be restricted to those who accept Mr. Lloyd

George's autocratic terms, and if necessary he would hand them over to a whole time doctor, without their having a voice in the matter. The converse holds good for the doctor, who will have to accept a certain number of patients that may, under certain circumstances, be allotted to him. Finally, by the act, the Insurance Committees are expressly given the right to allow an insured person to contract out of the act, if he desires to make his own arrangements for medical attendance by his former doctor, when the latter is not on the panel; yet now Mr. Lloyd George insists that this privilege should not be conceded save in very exceptional cases, although such applications are being sent in by tens of thousands. And the worst of it is, that the act has been so insidiously drawn up that the Insurance Commissioners are given absolute and autocratic power to make any regulations they think fit for the working of the act, and there is nothing to prevent them altering or cancelling them and making new ones as often as they please; yet when made, and unless the commissioners choose to revoke them, such regulations become part of the act itself, and so are possessed of statutory force. Thus, by passing this act, Parliament has created a body outside of itself whose "regulations" become statute law of the country.

But the end is not yet. The first "panel doctors," who took service voluntarily, were for the most part the ne'er-do-wells of the profession. The great majority of those who have since joined have done so under *force majeure* threatening them with ruin, and have openly proclaimed the bitter resentment they cherish over the unscrupulous methods of their antagonist. Moreover, they have taken service for three months only, and in that time much may happen. The last word will rest, neither with Mr. Lloyd George and his creatures, nor with the doctors, but with the insured persons themselves; and when they awake to the fact that, without their even asking for bread a stone has been forced on them, they are likely to rebel to some purpose. At present they are not alive to what this wholesale, sweated, bureaucratically managed, compulsory cheap club doctoring means. But already events are happening that will teach them.

On January 20th an inquest was held in London on an insured person who died, as was proved at autopsy, from strangulated femoral hernia that was becoming gangrenous. The deceased had always enjoyed good health, but on January 14th, the day before the medical benefits of the act came into operation, he attended in a queue of between 200 and 300 people to put his name on the list of a panel doctor who had an office near by, but resided a long way off in another district of London. The patient at the time complained of abdominal pain, and the doctor, without examining him, gave him some medicine. He called on the doctor next day and, again without any examination, more medicine was given him. On the night of the 16th he became very ill indeed, but the panel doctor, living a long way off, and his address being unknown in any case, could not be had, and the patient died with his condition unrecognized on the morning of Jan. 17th. In defence, it was shown to the satisfaction of the coroner and the jury, that the unfortunate panel doctor had been engaged in complying with the clerical work exacted by the act for six hours at a stretch, that it had been the same all through the week,

keeping him busy up to midnight, and that in consequence he had no time to attend to his patients, insured or otherwise, and was in fact rapidly losing all his private practice. The jury, returning a verdict of death from natural causes, added a rider "that more care should be exercised in future in the matter of examining insured persons by doctors under the National Insurance Act," but excused the doctor in this case "owing to the scandalous amount of work that was imposed upon him under the act."

The necessity of some scheme of state insurance against sickness for those whose income while, above the pauper line, yet affords them little or no margin wherewith to meet the changes and chances of this mortal life, is becoming generally recognized. But the risks of any insurance scheme should be assumed by those who give the insurance, not saddled on those whose means of livelihood it is to render the special service required. Moreover, it is highly desirable in the interests of medical science and of the community, for whose service medical science exists, that the best class of mind, culture, and character should be attracted to the practice of medicine, not merely in the case of the exalted few who dedicate their lives and themselves to a sacred mission, but also in the case of the large mass of practitioners who regard it primarily as a means of livelihood, even though sanctified to some extent, no doubt, to a greater or less extent by its altruistic character. Vexatious interference with freedom of action, the frequent conflict of duties between their essential work and state imposed red tape regulations, and the fact that in the future all practitioners who do not possess means sufficient at the outset to support themselves while waiting for practice, will have to start in a panel practice where an immediate income will be forthcoming, but from the vortex of which it will become increasingly impossible ever to escape—these forbidding conditions will assuredly deter from entering the profession men of promise, ability, and ambition, but without means. Those with means, on the other hand, will elect the higher class of practice, which will necessarily be incompatible with the regulation-bound service on the panel, so that the panels will be filled with men of an inferior calibre, to whom even any kind of medical work will be a rise in life. The few men who elect medical service in the spirit of the university missioner will not seriously affect the result. The standard of medical education, which has been raised by dint of so much painful and courageous effort, will again sink, to meet the needs of the inferior grade of men who will become candidates for the state service on the panel.

To obviate such a condition of things arising in this country, should national insurance, which already has its advocates here, come forward as a possible measure, the medical profession must make itself strong and united enough to insist on being given a clear voice as to what it is possible for it to do, under what conditions it is willing to do it, and what remuneration it will accept as adequate.

The Benzoate of Soda Controversy. There can be no question but that the intelligent classes are beginning to realize there has been much misunderstanding concerning benzoate of soda and the following from the *Independent* (Nov. 7)

is quite significant from more than one standpoint:

"Extensive experiments made by V. Gerlach, of Wiesbaden, confirm the results obtained by the Referee Board as to the harmlessness of benzoic acid and sodium benzoate, and discredit Dr. Wiley's ruling against it as a preservative for food. The author, experimenting upon himself, took as much as 10 grams of benzoic acid within 3½ hours without producing any noticeable effect upon respiration, body temperature, digestion or general condition. This is about the amount which would be used to preserve 30 pounds of meat or other food, so if a person did not eat more than that amount of benzoate food at one meal he need not be afraid of it. In tests upon the contents of his own stomach he found that the addition of benzoic acid to his breakfast did not alter the strength of the gastric juice or interfere with the digestive process. Daily doses of a gram of benzoic acid were given to men for periods ranging from one week to twelve without in any way affecting their health. This is more than any person would get unless he lived exclusively on preserved foods and was a hearty eater at that. How much benzoic acid a man could take without injury to his health was not determined but it must be very great, for in experiments on rabbits as much as one part per thousand of body weight was injected into the veins every day for twelve days without causing loss of weight or affecting the pulse, temperature or respiration. Since this method of administering the dose directly into the blood is more potent than taking it with food, this experiment would indicate that a man might safely take about 2½ ounces a day, though it would be risky to take more than five ounces. So it would to take five ounces of common salt every day. In fact, injections of sodium benzoate into the suspended hearts of frogs, cats and rabbits were found to produce less effect than solutions of common salt of equal concentration. It seems, then, from these and similar experiments that we have in benzoic acid a preservative as harmless as salt and considerably more useful, since it is tasteless and much more effective in preventing decay. If so, it is very important that the fact should be generally known, in order that the popular prejudice that has been aroused against it should be removed, for a safe, cheap and tasteless preservative would contribute greatly to the conservation of the health and wealth of the nation. The paper referred to is abstracted in the Experiment Station Record for September, 1912."

Possible Evils. While granting much or all of the foregoing as perfectly true, it should be remembered that the great objection to benzoate of soda, after all, has been based not so much on fears of the ill effects of the drug itself as it has on the evils its unrestricted use makes possible. The small amount of benzoate of soda used in most catsup, preserves, sauces and so forth may be perfectly harmless, as the Referee Board's report concluded, but how about some of the ingredients that this preservative makes it possible to use? Evidence has been brought forward showing that certain canning establishments, in Baltimore for instance, have been able to utilize half-decayed, filthy and practically refuse vegetables and fruits through the aid of sodium benzoate. Putrefactive changes have been arrested, disagreeable odors removed and sour disagreeable tastes more or less completely corrected, with the result, according to good authority, that material totally unfit for food has been made presentable and foisted on those who have no way of knowing the real situation. If all this is true and benzoate of soda makes such abuses possible its use should certainly be subject to rigid regulation.

The practical harmlessness of the preservative itself is of little or no importance in the presence of the greater question, to what extent does it make possible the use of inferior or positively harmful foodstuffs? It is high time that some unprejudiced as well as competent investigation was addressed to this phase of the preservative problem. It is pretty generally conceded that there is a genuine need for some safe and effective anti-fermentative for use in catsup, tomato sauces, canned fruits, vegetables, etc., for it is well known that the best and most carefully prepared products of this character will under certain conditions ferment and spoil. Common sense teaches that fer-

mentation and the resulting substances are harmful in the extreme. The evidence at hand leaves little doubt that benzoate of soda is infinitely to be preferred to the fermentative changes that all too often take place in the choicest of canned goods. Fortunately, therefore, as usually follows in problems of this character, once let truth and common sense prevail, and the benzoate of soda controversy will concern itself less with the question of the rational or legitimate use of this product than with the much more important and vital question of its abuse. The facts necessary to verify the statements that have been made ought not to be difficult to obtain, and with these at hand it should be easy to establish definite rules and regulations concerning the employment of this preservative that will not interfere or prejudice its proper use but will furnish ample protection against its evil application.

Anti-narcotic legislation that aims to control the abuse of habit forming or otherwise dangerous drugs assuredly deserves the support of every thinking person. The evils of drug habituation have grown rapidly during the past decade and the situation, as investigation has disclosed it, is one that may well occasion alarm. The conditions under which so many people live have produced certain nervous weaknesses that manifest themselves in vague, intangible desires. In one the condition may be a hyperexcitability requiring sedation, in another it may be an almost overpowering depression that cries out for stimulation. Whatever the state, the nervous equilibrium has been lost and the afflicted organism wants something, be it stimulant or narcotic, to restore a balance. Naturally with hundreds and thousands of human beings in such a receptive condition, the simplest circumstance like a toothache, a headache, or a slight operation on the nose or throat has all too often proven the starting point of a fatal drug addiction. The facility with which narcotic drugs could be obtained has been a constant factor in the evolution of many cases of habituation, and it is a sad commentary on human decency that there have been so many men—even some physicians—ready and willing to take commercial advantage of a lamentable affliction. That the time has come for the elimination once and for all of these vultures seems quite evident, but in the culmination of our wrath against those who prey on the afflicted, is there not danger that our zeal for effective legislation may lead us to impose needless, unwarranted and unwise restrictions on innocent and harmless parties? We refer particularly to the proposed laws against cocaine which in addition to placing very definite regulations on those who are allowed to sell this drug—stating the exact amount that shall be carried in stock or purchased at any one time—proposes to forbid practicing physicians from using or having on hand cocaine in any other form than in solutions of four per cent or less.

This is hysteria, pure and simple, and one more example of the human tendency to let our just indignation at abuses blind us to the good to be derived from legitimate uses. The law as proposed is an insult to the honor and integrity of every decent physician and no medical man who respects himself and his calling should fail to express his indignation at this uncalled for and narrow-minded attempt to handicap his work. No physician should hesitate to voice his objection to such unwise legis-

lation. No one need fear that it will lay him open to suspicion to state openly that he disapproves of a law so unnecessary and pernicious. The recent comment by Dr. Wolff Freudenthal, one of the foremost laryngologists in the land (*New York Medical Journal,* Feb. 15, 1913) voices the sentiments of the profession so clearly and succinctly that it deserves repeating. As he well says "the proposal to forbid physicians the use of any stronger solution than four per cent. is so ridiculous that it is almost beyond discussion. In laryngological work we use twenty per cent. solutions every day in our office practice. In bronchoscopy, which at present is also being done in private practice, that solution is pushed to the point of toleration; and in certain operations on the nose the writer as well as other colleagues uses pure cocaine. Shall we be obliged to get a permit, whenever we operate for a deviated septum, or must the patient suffer pain because a few rascals in the profession have turned a valuable anesthetic into profane business? Because there are some abortionists with the diploma of M. D. in this city, are all obstetricians to be put under a special code?

Furthermore, it is scientifically wrong to keep cocaine in solution for any length of time, as it decomposes so quickly. Only those who use a great deal may do that. As a rule, however, every physician ought to prepare his own solution at the time he needs it. For that reason he must be able to get the pure cocaine, and not a four per cent. solution.

Finally, the writer would ask, why only regulate the sale of the opium and coca derivatives? Aren't there many other drugs that could be and are being sold fraudulently, and to the detriment of the patient? One drug especially, that is being used in connection with cocaine so frequently, comes to our mind, viz., epinephrine. There are great chances for quacks to perform miraculous cures with that drug, and yet epinephrine is free, though it has brought about the death, as pointed out by the writer, of a number of cases. Would rhinologists care to be restricted in its necessary and legitimate use?

To prevent the injudicious sale of morphine, cocaine, etc., to the public is an entirely different matter, and nobody objects to having that regulated in a rational manner. But to restrict physicians in applying these drugs to patients is, to say it mildly, erroneous.

It seems to us that a tendency prevails at present—not only in the Legislature—to restrict the already restricted physician. A regular physician is regulated by his education, his diploma, his associations and medical societies, while the quack is allowed to advertise his impossible cures, to sell his swindling medicines, and to carry on a large business without interference from anybody.

If a physician has been found to have committed any criminal action we should have the right to *disbar* him, i. e., to take away his diploma. Otherwise he must have full freedom in the practice of his profession. We want to enlarge his sphere of usefulness, and not hamper it."

The whole trouble is that when we as a people focus our view on one phase of an evil, or have our attention drawn to one side of a question, we are too prone to jump at conclusions—to take a part for the whole. Admittedly there has been an enormous increase in drug habituation. Grave abuses have attended—and still attend—the sale

of habit forming drugs. In too many instances physicians have been responsible for patients becoming addicted to drugs. But with the rarest of exceptions these have been due to thoughtlessness and not to any wrong intent. Finally, a few—a very few—physicians whose acts are abhorrent to every decent doctor, have sought to profit from the dispensation and sale of narcotic drugs. These are the parts or specific details of the proposition. On the other hand the great bulk of medical men have seen the menace of the habit forming drugs and have taken every precaution to reduce their evils and dangers to a minimum. When necessity has forced the use of either morphine or cocain—and right here let it not be forgotten that in their proper place and used at the right time in the right way, these two drugs are God given, if any are—they have usually been employed without the patient's knowledge and in the most cautious manner. Finally no decent physician has ever engaged in any way in the traffic of these drugs. This is the true situation as every honest physician knows it, and it certainly does not warrant any such ridiculous restrictions on his professional work as are planned in the pending bill. Correct the abuses of narcotic drugs—every honest physician to the best of his ability will help and support every effort to this end—but let no offensive and embarrassing handicap be placed on their legitimate uses.

The lasting immunity conferred by proper vaccination is one of the best attested facts in medicine. When smallpox invades a community the disease is confined almost exclusively to the unvaccinated. The few cases of smallpox with a history of previous vaccination not infrequently show imperfect scars, indicating that they had never been properly protected. There is of course no question, that in a very small percentage the immunity does wear out in time, and there is also no question that every one should be vaccinated in adult life no matter how successfully vaccinated in infancy. Nevertheless if the child has been vaccinated at three or four points, it is exceedingly difficult to make it take again all the rest of its life. It is almost the rule for revaccinations to be unsuccessful, and there are no cases of smallpox on record in which there is a history of proper vaccination and revaccination which have been undoubtedly successful. There will probably therefore be some objections to the remarks of Dr. F. F. Russell in the *Jour. Amer. Med. Assn.* Oct. 12, 1912, in which he accepts some doubtful Japanese statistics as basis for his opinion, that the immunity confered by vaccinia is very evanescent. Kitasato reported the results of revaccination in 951 cases, and asserted that after an interval of one year revaccination was successful in 13.6 per cent. and that the percentage of successes increased with the interval, until it was 63.8 per cent. after the sixth year. He estimated that immunity was practically gone ten years after vaccination. These figures cannot be accepted for a moment. The error is doubtless due to mistaking an inflammation from pus organisms as an evidence of successful vaccination. Not infrequently also a vaccination begins "to take," but aborts, and these are generally mistaken for successes. The British Royal Commission stated that immunity generally lasts for nine or ten years, but it is justifiable to conclude that the evidence on which this opinion was based, was also defective from the inclusion of spurious cases. Proper vaccination is far more effective than this, and we revaccinate entirely too often. In addition we generally make but one insertion whereas there should be three or four. We must also make a distinction between

immunity to vaccinia and immunity to smallpox. It is quite possible to be resistant to one disease and not to the other. A man may be able to resist a mild infection with smallpox, but unable to resist the vaccine introduced into the skin. The contrary is also known of cases difficult to vaccinate, but not immune to smallpox. Kitasato's statistics therefore have little value in determining the exact amount of immunity conferred by vaccination.

Theological views of race-suicide are of no concern to physicians as physicians. We drop science when we enter the church door, and it is time for the clergy to drop religious dogmas when they enter the halls of science. A learned church-man is quoted as saying that race-suicide "is a violation of the laws of nature," though many physicians are industriously at work trying to find out what are the effects of continence. "A man is obliged to serve the natural law, of which this is a violation, and no one can do this with impunity." We should be shocked to learn that no one can be celibate with impunity, or continent if married, but the reverend gentleman has no basis in fact for his physiological views. There are not a few physicians who are firm in their conviction that men can be celibate with perfect impunity. As for prevention of conception, married clergymen must be practicing it one way or another as we have previously mentioned, or they would kill their wives by frequent pregnancies. Holy writ nowhere says that prudential restraint is defeating "the ends and aims of divine Providence." It is remarkable that those clergymen who have no experience of the burdens of paternity should be so insistent upon making everyone else take up those burdens. As for wishing the nation to increase in numbers in face of the increasing costs of foods—that means more underfeeding. We cannot quarrel with denunciations of unnecessary abortions, but we do object to advising women to commit suicide by frequent pregnancies, trying to avoid race-suicide.

The deterioration of nitro-glycerine tablets is such a serious matter, that the attention of the profession should be directed to it.

This drug is never prescribed except in urgent cases, and it is very disconcerting to learn that many of the tablets on the market are so old, that they contain practically no nitro-glycerine at all.

A man's life may thus be lost. Perhaps the manufacturers could take steps to prevent this danger, by placing a date upon the sealed packages, and if physicians use it in this form, they must be sure that patients get perfectly fresh preparations, which have been kept in hermetically sealed glass retainers. We are quite certain that the failure to get results from this drug, is due to the fact, that the patient did not get enough to have any physiological effect whatever. It would be best for physicians to dispense these tablets themselves, in order to be absolutely sure that the patient gets what is prescribed. A prescription may fall into the hands of a druggist who does not know that his stock has deteriorated, and thus sells it, through ignorance, rather than dishonesty. It is one more instance of the absolute necessity for knowing that our patients get exactly what is prescribed. A few manufacturers have been warning against using anything except fresh tablets, but they should set a date, beyond which the tablets are worthless.

MEN AND THINGS.

Real progress in Eugenics is seen in the practical work one of our most esteemed contemporaries has undertaken, and will shortly carry through to what promises to be a most noteworthy success. We refer to the private production of Brieux's famous play "Damaged Goods," which will be given on the afternoon of March 10th, under the auspices of the *Medical Review of Reviews* and the following special committee: Mrs. Richard M. Bennett, Dr. Simon Flexner, Cosmo Hamilton, the Rev. John Haynes Holmes, Frederic C. Howe, Mrs. Charles H. Israels, Miss Helen Marot, Dr. William J. Robinson, John D. Rockefeller, Jr., Dr. William Jay Schieffelin, Mrs. Rose Pastor Stokes, Mrs. W. K. Vanderbilt, Sr., Dr. James P. Warbasse, and Dr. Ira S. Wile, chairman.

It is understood that the play will be staged by Richard Bennett, who will himself take one of the leading parts.

While this undertaking is distinctly an innovation and will doubtless occasion much discussion there is no denying its splendid possibilities along educational lines. This presentation of one of the great problems of Eugenics through the agency of the drama can hardly fail to mark a new era in sociologic study and research, in this country at least. Europe has been attacking these questions from practical standpoints for some time but America unfortunately has seen fit until lately to allow prudery and false modesty to stand in the way of all progress and block all material advance. Happily, within the last few years a healthy sign has appeared in the courageous discussion of important sex problems by a few who have dared to brave the frowns and open criticisms of those who can see nothing but evil purpose in considering such subjects. Gradually ignorance and prejudice have been overcome and for some time there has been in evidence a wholesome tendency to look these questions pertaining to sex and correlated topics squarely in the face. That some of our leading citizens and business men as well as physicians, scientists, teachers, etc., are interesting themselves in the study of these great vital problems and striving to aid their practical solution promises much for the immediate future.

This latest move, wherein a leading high class medical journal—sober, staid and dignified, with character and traditions of the highest—has had the courage and willingness to undertake the presentation of a play like this fearless one by Brieux, surely deserves the heartiest commendation from every one who appreciates enterprise and purposeful effort. AMERICAN MEDICINE and every one connected with it extends sincere congratulations to the *Medical Review of Reviews* and wish it the most complete and far reaching success it can possibly achieve.

Doctor Johnson and the Doctors.—Medical men have been sought, not alone for treatment, but as associates, for they have always been found peculiarly interesting and attractive companions. Thus says Boswell, writing under date 1784, the year of Johnson's death, "Dr. Johnson had in general a peculiar pleasure in the company of physicians," and this was certainly not abated when he took tea at Oxford in the company of Dr. Wall, says a writer in the *Lancet* (London, Dec. 21, 1912), a "learned, ingenious, and pleasing gentleman." It was on this occasion that the great moralist prophesied, in some sort, the necessity for research into the diseases of the East and of warm climates. He fell foul of the Radcliffe Travelling Fellowship, and averred that the Fellows had done very little good. "I know nothing that has been imported by them; yet many additions to our medical knowledge might be got in foreign countries." And he cited inoculation as having saved more lives than war destroys, and the unnumbered cures performed by Peruvian bark. "I would send the Radcliffe Fellows," he cried, "out of Christendom; I'd send them among barbarous nations." Johnson's kindness to poor old Dr. Robert Levett, his pensioner, is, of course, famous, and equally so are the lines he wrote on the doctor's death at the age of 80 in 1782. Goldsmith, also a physician, was among his intimates, and the chaff bestowed on his new plum-coloured coat has become immortal. The coat, terribly

worn and threadbare, is now in the London Museum, and suggests the pathetic supposition that the spendthrift poet-physician wore it till it was almost unpresentable. At the time of Goldsmith's death in 1774 Johnson wrote, "Of poor dear Dr. Goldsmith there is little to be told." Goldsmith probably owed £2000, not less, and this preyed on his mind and heightened a fever, which he further complicated by an excessive use of James's powders. Referring to the debt Johnson humorously asks: "Was ever poet so trusted before?" Later, writing to Bennet Langton, he says, "Let not his frailties be remembered; he was a very great man." If Goldsmith by his over-medication hastened his own death, Johnson by dint of amateur surgery did likewise. Shortly before his death he inflicted such wounds upon himself, in the hope of obtaining relief, as to suggest the idea of suicide. He used a pair of scissors in an endeavour to void the water of dropsy. Johnson's last words were many. To the faithful Langton he said tenderly: "Te teneam moriens deficiente manu." Of his man nurse he said, with a flash of the old humour: "Sir, the fellow's an idiot; he's as awkward as a turnspit when first put into the wheel, and as sleepy as a dormouse." His last recorded words were to a young lady who had asked for his blessing: "God bless you, my dear." This was spoken on Dec. 13th, 1784. It was to this young lady, doubtless, that he wrote a priceless letter of farewell, now in the possession of Dr. H. T. Scott, the great authority on autographs. As Dr. Scott says, such a letter is a part of the august dead, and should not be parted with at any price.

TO PROSPER AND TO LIVE.

To work, to help and be helped, to learn sympathy through suffering, to learn faith by perplexity: to reach truth through wonder,—behold! this is what it is to prosper, this is what it is to live.

PHILLIPS BROOKS.

Give us courage and gaiety and the quiet mind. Spare us to our friends, soften us to our enemies. Bless us, if it may be, in all our innocent endeavors.

STEVENSON.

The Depopulation of France.—Some two months ago the French Government, says a correspondent in the *Med. Press and Circular* (Feb. 12, 1913), appointed a National Commission, consisting of over 100 members, and including several ex-Prime Ministers, to examine the population question from every point of view. Some important facts have already been published. In 1910 the excess of births over deaths was only 71,418, while in Germany it was 879,113, in Austria-Hungary 573,520, in Great Britain 413,779, and in Italy 451,771. Indeed, in the years 1906 and 1911 the number of deaths in France, although gradually diminishing, had exceeded the number of births. In some of the other countries mentioned a diminution in the birth-rate was also recorded, but it bore no comparison with the diminution in France. Another feature of the statistics is that in 1908 there were in France 1,350,000 unmarried men over 30 years of age, and a somewhat larger number of unmarried women. There were 1,804,710 families without children, 2,966,171 families with only one child, 2,661,978 families with two children, 1,643,415 families with three children, and only 967,392 families with four children. The total number of families with four children and more was only 2,328,780. France has not enough people for her home requirements; she can spare none for her vast oversea territories, misnamed colonies, which she has acquired within late years; her numbers are, in fact, kept up by immigration of Italians, Swiss and Germans. The number of foreign residents in France has increased since 1851 from 399,000 to 1,132,000; a number sufficient to destroy her distinctive nationality within a few generations. The question of the effect of excessively small families or of total suppression of the philoprogenitive instincts on married couples is being discussed, and the effect upon the quality of the offspring noted. It is recognized that there is being carried on a gigantic system of artificial selection; and that if the first born of the possible broods which might be produced are as a rule physiologically not the best bred, it follows that an inferior race is being developed. Syphilis, the one disease certainly hereditary, affects most frequently the first-born. In France, among families in the provident classes, the main

aim is to get the daughters married. It matters very little what her physical and intellectual defects may be, a mate can be nearly always found for a French girl with the fortune called for in her rank. I heard lately of the marriage of the hunchbacked daughter of a wealthy house to whom a big *dot* was assured. Marriage for the men of the same station and quality is also mostly possible, albeit, as the statistics given above show, the marriage rate remains a very low one. The question of the *morale* of children reared in very small families; the effects of the "spoiling," from which they can rarely escape when only one or two in number—inquiry into these and other aspects of the case begins to suggest the gravest doubts as to whether the customs which have become so deeply rooted in the national life are likely to result in the increase of individual happiness or in the growth of stability and power in the state.

THE DOCTOR'S WIFE.

BY A. BROTHERS, M. D.[1]

New York City.

Who thinks the doctor is handsome
When every passer-by
Can see the warts and pimples
That make the children cry?
Who thinks he is a great man—
The greatest 'neath the sky?—
The doctor's wife!

Who wastes her youth and beauty
Till oft she's quite a sight;
Who slaves from early morning
Till very late at night;
Who 'tends to house and house work
Who 'tends to heat and light? —
The doctor's wife!

Who answers 'phones at night-time
When doctor's on the route
To his confinement cases—
Or some such work—no doubt;
Or when he's snoring loudest
Who lies—and says he's out?—
The doctor's wife!

Who asks about his cases—
Just those that cause him care;
If case is young and pretty,
(With paint and golden hair)
Who sizes up the "patient"
In th' office with a stare?—
The doctor's wife!

Who 'tends the children's buttons
And keeps them on the path
Of Righteousness and Schooling;
Looks after clothes and bath;
Protects when doctor's angry
All-comers from his wrath?—
The doctor's wife!

Who clings to every patient
By sheer devotion led;
Who sees that doctor and children
Sufficiently are fed;
Who cuts down house expenses—
When short of rent and bread?—
The doctor's wife!

Who sacrifices all things
In dress, in sport, in play;
Who willingly will work all night
(E'en after work all day);
Who slaves and strives for love alone
Without a cent of pay?—
The doctor's wife!

Who, suffering pain and torture
When sickness wracks her frame,
Still sticks to household duties
And works on just the same;
Whilst the doctor keeps on telling her
That she's alone to blame?—
The doctor's wife!

Who shows angelic patience
When the doctor's heart is sad;
Who compliments his virtues
And covers vices bad;
Who makes him smile and happy
When ill luck drives him mad?—
The doctor's wife!

Who gives him most attention
When sick or weak or old;
Who sees that he gets into bed
And makes him do as told;
Who covers him with blankets
To keep away the cold?—
The doctor's wife!

And when the parting comes at last
Which takes him from her side
To far-off shores beyond the clouds
With the ebbing of the tide,
Who mourns him most sincerely:
His life long friend and guide—
The doctor's wife!

Then drink, ye Aesculapians!—
Until the Sun doth Shine
O'er skies and earth and ocean
Till laughter flows like wine!
Drink health, and life, and beauty
To that priceless gift divine—
The doctor's wife!

---

[1]The many physicians who knew the late Dr. Abram Brothers, will be interested in these verses presented by him at one of the last banquets attended before his untimely death.

The Bath and Its Hygienic Importance.[1]—The hygienic value of bathing was never more widely appreciated than it is to-day. The custom of building special baths or swimming pools in the mansions and palaces of our multi-millionaires is not new, however, for as an editorial writer in the *Lancet* (London, Nov. 2, 1912), points out the practice of bathing as a luxury or for therapeutic or hygienic purposes, as distinguished from the mere removal of discomforting superficial dirt, probably took its rise in oriental countries, passing thence through Greece to Rome, where it attained the maximum of luxuriousness in the later empire. At that time many wealthy people had complete bathing establishments attached to their villas, while there are said to have been upwards of 870 public baths in Rome. The bath consisted of several rooms; the apodyterium, or undressing room; the frigidarium, or cool room, containing also a cold plunge bath; the tepidarium, or warm room; and the calidarium, or hot-air room, having a hot-water bath at one end of it. To these, in later Latin times, was added the laconicum (so called from Laconia, where it originated), or sudatorium, where the heat was very great. The bather passed through all these rooms in succession until he arrived at the calidarium, or the laconicum. Then he returned to the tepidarium, where cold-water affusion was practised, and he underwent a thorough scraping, friction, kneading of his muscles, and stretching of his joints at the hands of an attendant, and was subsequently anointed all over. A long rest for cooling off was then taken, prior to passing once more into the open air. The private baths of the wealthy were constructed on a similar pattern. They were highly and expensively ornate. To the public baths were attached gymnasia, colonnades, often fragrantly scented, an amphitheatre, and even libraries, so that they became the favourite lounging places of the wealthier and more fashionable citizens. In an interesting monograph[1] Dr. W. Oscar Jennings gives full information on many of these particulars and traces the history of the bath among the Greeks, the Romans, through the Middle Ages, concluding the historical part of his book with references to the baths in France, Germany, England, Russia, Finland, and among the Turks, Egyptians, Indians, Mexicans, and Irish. Cortez found public baths among the Aztecs. Dr. Jennings especially emphasizes the universal use of the bath as a hygienic measure. Dealing in the second part of his monograph with the Turkish bath, viewed from a hygienic and therapeutic standpoint, as we know it to-day, Dr. Jennings reminds us that notwithstanding that "Hammams" appeared in England at the close of the seventeenth century, we owe its revival in modern times largely to the publication in 1850 by David Urquhart of "The Pillars of Hercules." This book led to the erection of a so-called Turkish bath (but rather a hot air than a vapour bath) at Blarney, by Dr. Barter, and a short time afterwards to one by Sir John Fife, physician to the Newcastle-on-Tyne Infirmary. As a regulator of the bodily functions and an eliminator of toxins, Dr. Jennings extols the Turco-Roman bath—a combination of sudorotherapy, massotherapy, and hydrotherapy—which, he says, is regarded with enthusiasm by practically every practitioner who has tried it himself. He highly recommends it in conditions of faulty metabolism, and especially in alcoholic and drug addiction. As is well known, the condition of extreme depression following the stimulant effect of the dose is the chief factor in compelling those who have once become addicted to keep on having recourse to the drug. But it is precisely the dispersion of this sense of depression, restlessness, and sinking, of mental and physical collapse, for which the alcoholic or the drug *habitué* has recourse to his poison, that is the distinguishing therapeutic characteristic of the Turkish bath. There exists, says Dr. Jennings, a certain vague resemblance between the sensations aroused by the bath and those derived from the morphine injection. Caution must be observed, it is true, especially in not being tempted to overdo it, either in duration or in the degree of temperature: and particularly must care be taken by the novice not to allow himself to be carried away by the enthusiasm of the old

[1]Le Bain Turco-Romain, les Applications Hygiéniques et Thérapeutiques. Etude Médico-historique, par le Docteur Oscar Jennings, de la Faculté de Médecine de Paris, Fellow of the Royal Society of Medicine. Préface du Docteur J. Lucas-Championnière, Membre de l'Institut, Membre de l'Académie de Médecine. Paris: Vigot Frères. 1912. Pp. 69.

habitué of the bath, who is very prone to play the part of a proselytizing professor of balneotherapy. It is remarkable what a small proportion of people in this country have ever taken a Turkish bath. It is equally remarkable that few, if any, of those who have done so fail to experience the delightful sense of euphoria, and physiological elation, which is at the same time indicative of its hygienic value and suggestive of its therapeutical possibilities. As a therapeutic measure, however, it should be practised only under the sagacious counsel of a medical man well cognizant of its effects and acquainted with the patient's condition.

A Careful House Surgeon.—F. W. Langridge quotes the following anecdote related by Harrison Cripps: (*Clinical Jour.*, Oct. 2, 1912). A patient swallowed a half penny one afternoon and next morning the house surgeon on examining him extracted this halfpenny from the rectum. It had passed down without much trouble, but had been unable to pass the rectum. This was the case in which the house surgeon got into trouble with the lay governing body of the hospital. He was charged with having extracted a fee from an outpatient. But as the amount in dispute was small he thought he had better hand it over to the hospital authorities to avoid prosecution.

Malta fever in Texas has at last established itself as was so confidently predicted as soon as the cause was proved to be a permanent resident of certain goats. Doctors Gentry and Ferenbaugh of the Army have found numerous cases among those who have been herding goats or drinking goat's milk. The results of this epoch-making work have been published in a series of articles in the *Journal of the Amer. Medical Association*. Many other cases have existed unrecognized or have been reported under other names. It is therefore time to take preventive measures where there is danger of contracting the infection. Fortunately the organism does not multiply anywhere except in the goat —that is, there is yet no evidence that it does except perhaps in the butter and cheese made from goat's milk. By simple care to avoid such articles of diet, the disease may be kept in check, but that is a difficult matter in a district now being given over to the new industry of goat raising. Besides, the organism may find other culture media in this country. It is difficult to predict what any parasite will do when taken to a new home and this disease may soon be found elsewhere. Should the fever become widespread, there may be necessity for extensive inspections of the herds to eliminate susceptible animals, as is now being done abroad.

Malta fever can be controlled. Gibraltar got rid of the disease by getting rid of the goats, but that cannot be done in a new industry which bids fair to become very extensive and profitable. We are certainly in for a prolonged sanitary crusade and the thought naturally arises as to whether an ounce of prevention now will not save pounds of cure a little later. At least it is one more argument for a national health department, as it is a problem for which we have no governmental machinery, and the menace would have been anticipated if there were officials whose duty it is to consider such matters from a national and not a local viewpoint. The new movement of our stock breeders in the direction of importing animals and plants from all over the world to create new varieties of more profit than the old, is quite sure to let loose a Pandora's box of evils sometime. So it is only common sense to anticipate a little and we can do so in this case without the slightest suspicion of holding alarmist views. The disease is here and must be dealt with now. Nor are we alone in our trouble, for the infection has been carried wherever Maltese goats have been carried, and in some Mediterranean districts this breed is being excluded in spite of its great milk producing powers. We may be compelled to take similar steps in the interests of public health. Ten years ago Malta fever was an appalling scourge to Europeans living in the endemic areas of the Mediterranean but it is now under almost complete control. We can do the same though it will require rather drastic measures.

ORIGINAL ARTICLES.

THE ECONOMICS OF MEDICINE.

BY

IRVING WILSON VOORHEES, M. S., M. D.,
New York City.

On November 19th, 1912, a company of fifteen representative doctors of New York City came together at a dinner for the purpose of considering some of the problems dealing directly with the welfare of the public in its relation to the practising physician. The intensity and earnestness of the occasion mark it as the beginning of one of the great movements in modern medicine.

Although the ubiquitous reporter was kept in ignorance of what was going on and the flashlight man was conspicuous by his absence, there was a very decided unanimity of opinion and all the discussions were remarkably free from personal bias or predilection. It is altogether probable that never before in the history of medicine have opposing factions and "schools" sat down together at the same festal board. Representative men from the Homeopathic, the Eclectic and the so-called Regular branches of the profession rubbed elbows and exchanged funny stories until coffee was served and the regular business came before the Council. The man who is responsible for this effort at unification is Dr. E. Eliot Harris, who for many years has been prominent in both the New York County and State Medical Societies, and has had a very important part in shaping at Albany medical legislation which has been a benefit both to the public and to the profession. Dr. Harris believes in a liberal policy in the treatment of those practitioners of medicine who have hitherto been assigned to outer darkness because they choose to differ in their manner and method of giving drugs from the so-called Allopathic School. He believes that the barriers of sectionalism should be burned away and that those who have been admitted to the "practice of medicine in the State of New York" as that phrase is defined by the Statutes should unite in a common bond for the study of problems of individual and social welfare.

The value of unifying and coordinating the activities of all medical men can scarcely be overestimated. Not that doctors in the future would never disagree—that is out of the question and would not be desirable in all respects even if it were possible. But for the study of those problems which lie outside of scientific medicine such as the abuses of hospitals and dispensaries by those who can well afford to pay, medical insurance acts, lodge practice, the overtrained nurse, the unscrupulous pharmacist, adulterated foods—in short, for the study of those matters which lie close to the public health, and for the prevention of disease and untimely death this Society hopes to bring about great good. However, no Utopian dreams of instantaneous regeneration are entertained. Opposition is expected, and from some quarters bitter opposition, but this will be welcomed because it is needed to clarify the atmosphere and to open up new avenues of thought and new methods of attacking the old monsters of doubt and prejudice and unscrupulousness.

After much deliberation and discussion it was decided to name the new organization "The American Society of Medical Economics" but with the distinct understanding that the word American means all countries both of North and South Amer-

ica. The parent organization incorporated under the laws of the State of New York will need much grooming and much thoughtful consideration before its internal affairs are systematized so that the Society can serve every practitioner in every remote hamlet, but that at least is its purpose and the purpose is certainly laudable. Every practitioner of medicine who is qualified by licensure under the laws of this state can become eligible to membership upon payment of the yearly dues of $5.00. This money is to be used in circularizing the profession and for the salaries of its officers who shall give up their entire time to the furthering of the common interests of the public and the profession.

It cannot be gainsaid that the ultimate basis of the present discontent and elements of unrest in the medical profession are due to a lack of income sufficient to maintain the doctor and his family in a dignified and decent position in society. Of late years the younger men have been having a particularly hard time of it because immediately upon beginning practice they have been subjected to the keenest competition. The many new healing sects and "irregulars" have made great inroads upon the sum total of patients who originally were divided among the Regulars and Homeopaths. Thus Osteopathy, Christian Science, Chiropracty, Mechano-Neural-Therapy and scores of other cults have thrived, partly because of their novelty and partly because they offer to the sufferer a new hope which the old schools have been unable to supply. There also has been a very marked and manifest decrease in the total amount of disease, especially of the acute infections which are in reality the type of ailment which responds most readily and successfully to the doctor's skill. The regular profession has never been extremely successful with chronic ailments and it is just these which have improved or in some instances have yielded to the strong arm of the Manipulator who was not slow to recognize the great importance of exercise, rest, diet, fresh air, etc., as accessories in his work. Moreover, the requirements for graduation and licensure have been growing increasingly higher in the medical schools, so that no man could hope to begin active work very much before his 30th year. During the first five years of his career the young doctor has found it well-nigh impossible to make a living without resorting to school inspection, Board of Health work or some other salaried position so that out of this feeling of want have grown the contract practice evil, "lodge" work, fee-splitting and other irregularities, all of which are loudly denounced by the great body of medical men. The young doctor has, therefore, all too frequently found himself facing the horns of a very unpleasant dilemma, and it is no wonder if he has sometimes yielded to the great call of the "Love of Life."

There has doubtless been an unwholesome degree of conservatism in the profession which is largely responsible for present conditions. The well-to-do physician in his comfortable quarters has raised a hue and cry about "ethics" and the preservation of professional decorum, railing against irregular practitioners or trying to ignore their influence altogether, but doing nothing openly to combat the ills which beset his unfortunate brother. In some respects, at least, medicine has failed to keep pace with modern progress; for the physician has made little or no direct effort to get business, preferring to think that his superior training and culture would

bring him a clientele in spite of everything. This attitude has not produced the desired result, because true conservatism never means to stand still and do nothing. The world is on the move and we must move with it.

The public wishes to be told what the profession can do against the ills which beset it. It does not now know where superior or special service can be found; therefore it goes to the druggist and asks for some drug which it thinks will cure, often making a bad matter worse and leading to harmful and indiscriminate drug-taking. The profession has paid a great price for its unwillingness to tell what it can do; and it is altogether absurd that a patient must needs find out indirectly or through subterfuge where a doctor can be found who is capable of curing nasal obstruction, or headache or constipation. That is why catarrh snuffs that engender drug habit and acentanilid that depresses and finally paralyzes the heart and irritating salts that make a bad bowel difficulty worse, are sold over the counter in such large quantities. The public wishes to know when, how and where it can be cured of these ills and it is one of the highest and most important duties of the profession to tell it. It is little short of criminal to leave these matters to the advertising quack. Why cannot the regular profession in a dignified and correct manner inform the public who the physicians are that are making treatment of certain diseases a specialty? This is a matter for the new Society of Medical Economics to inquire into, and I have no doubt that within five years the physician who has spent years in getting ready to practice a specialty, will, by means of a simple card in the newspapers or a single phrase on his sign, announce to the public the kind of work he chooses most of all to undertake. This is now the case in Germany and Austria; why not in America?

One of the things which will come up for very early discussion is the preparation of the general medical practitioner to enter special fields. It is now generally conceded that every physician should first have from three to five years in general practice in order that he may learn to recognize the symptoms that lead to a diagnosis of general disease. He will then avoid the very disastrous habit of seeing every symptom only in reference to the patient's eye or ear and will get the *entourage,* the setting of the localized lesion, treatment of which is all that is needed to relieve the complaints involving the concerned special organs. A campaign of education to bring about this desired end will soon be started, and physicians will be invited and probably later compelled to go into the clinics for systematic and thorough instruction by men who are authorized after severe tests to give such instruction. In this the voices of the incorporators of the Society of Medical Economics spoke as one. Every physician present at the first meeting is a master in his field, and is not only willing but anxious to teach. The holding of Hospital privileges for one's own private ends was loudly condemned, and the "open clinic" was acknowledged to be the only way of combating this evil. There was, of course, a variety of opinions as to the method of organization and systematization of such teaching, but that is a detail which can be worked out satisfactorily later on.

Selfishness and prejudice should have no place in medical science. We need men of broad and liberal training who are capable of viewing the economic aspect of medicine

from every angle unprejudiced by the schisms of "schools" or by personal antipathies. University training preliminary to medical study is bearing fruit, and a much better type of man is entering the Class A schools now than was the case five years ago. Personally, I should like to see every student academically trained without too much science before coming to medical school. The old-time cultural studies must not be forgotten, Latin, Greek, French, German, Mathematics, History, Art, Music—these furnish the best possible food for a mind in course of training. Thus will mental myopia be forestalled, or if present, be changed into the presbyopia of correct judgment and interpretation of the objects coming into the physician's mental horizon.

SOME REMARKS ON THE MEDICO-ECONOMIC MOVEMENT.[1]

BY

OSCAR ROTTER, M. D.,
New York City.

At last the medical profession at large has come to recognize the necessity of organization for the protection and promotion of its economic interests. To deny the fact that the majority of physicians, in general and special practice alike, under present circumstances are just able to make a bare living through professional work, would mean to stamp oneself an ignoramus or a hypocrite. The many causes for this state of affairs in medical practice are so well known by this time, they have been so thoroughly discussed by medical writers and speakers for the past few years and last but not least a voluminous mass of pertinent statistical material has been officially collected very recently, that it would be a waste of time to take up this fundamental fact of the medico-economic problem to-night. The diagnosis of the malady, from which we as a profession suffer, has been made, what concerns us from now on is its therapy. There is one indispensible first remedy to bring about a cure, on this the medical profession has come to agree, without this remedy there is no help in sight and this all-important remedy is a thorough economic organization of the members of the medical profession. We must organize ourselves in the interest of our material welfare in the same way as the members of other socially useful and necessary occupations, professions or trades have done long before us. We must organize all over the territory of Greater New York Physicians' Economic Leagues as the industrial workers have organized their unions and the captains of industry their syndicates or associations. We must emancipate ourselves from our traditional, foolish and false pride or rather vanity and learn to take care of our economic welfare in harmony with modern conditions of life and the struggle for existence.

There have been isolated attempts made in this direction in years gone by by members of our profession who with keen eye saw the tendency of the times but things were generally evidently not bad enough yet within the practice of medicine and consequently utter apathy at large reigned supreme. The efforts and educational work of these early medico-economic agitators was not entirely in vain. Evolution in economics as in other spheres of life works

[1]Read January 24th, 1913, before a convention of Delegates, representing the Yorkville Medical Society, Medical Alliance, German Medical Society of New York, Physicians' Protective League of New York and Brooklyn Physicians' Economic League.

slowly, yet at the same time by periodical leaps and halts. A movement once begun however, has within it the tendency to go forward. Things in medical practice got steadily worse as foreseen and predicted. The resulting discontent and unrest among physicians grew until about a year and a half ago a new medico-economic movement came into existence.

Early in fall of 1911 there were two medical societies, both of only recent organization, which at first independently and without knowledge of each other began a systematic agitation for the promotion of the economic interests of the medical profession. One was the Yorkville Medical Society and the other the Medical Alliance. I will shortly come to speak of the federation of the Greater New York Medical Societies' Economic League under whose auspices we, as delegates from various medical societies, are assembled here tonight to contribute in regard to a plan of organization whatever we may to the solution of the complex medico-economic problem.

On October 16th, 1911, at its regular meeting after a thorough discussion of matters economic that lasted way into midnight, the following motion was made in the Yorkville Medical Society and adopted unanimously:

Moved: We establish a permanent Committee on Economic Research of the Yorkville Medical Society.

The Yorkville Medical Society through this committee is to work out a systematic program of dealing with medico-economic problems and to invite the cooperation of other medical societies of Greater New York.

A committee of seven members was appointed forthwith with the instruction to begin and keep up work as outlined and laid down in the motion.

At about the same time the Medical Alliance had also been active in discussing ways and means for abolishing the many evils which make the profession of medicine one of the least remunerative considering the effort, time and money necessary to become a member thereof and the peculiar hardships connected with its practice.

On January 25th, 1912, at its regular meeting the Medical Alliance in response to an invitation, affiliated itself with the Yorkville Medical Society on the platform and in the spirit of the motion before cited.

On March 15th, 1912, a conference between delegates from the two societies took place to discuss further practical action in reference to a plan of cooperative economic organization.

The result was the creation of a federation or central organization to be composed of delegations from such medical societies as would make medico-economic agitation either part of their activity or would exclusively engage in it. The name adopted for this central organization was: The Greater New York Medical Societies' Economic League. In September and December, 1912, respectively, an appeal was sent out to thirty-five medical societies, regular, homoepathic and eclectic, the county medical societies included, to establish standing economic committees within themselves and to join through them the Medical Societies' Economic League for the purpose of exclusive economic agitation, organization and work.

Up to date two of the societies appealed to have entered the league by the appointment of delegates. They are the Medical Association of Greater New York and the

German Medical Society of New York. The Bronx, Harlem, Metropolitan, Lenox and Queens-Nassau County Medical Societies have replied promising action in regard to affiliation at some future meeting.

While this effort was being made by the Medical Societies' Economic League to remind the many existing medical societies of their duty towards their own membership and the profession at large as regards its social and economic status in the community, to bring them in touch with present time conditions under which their members have to earn a livelihood, the spirit of the times took possession of the minds of hundreds of physicians all over Greater New York, within as well as outside our existing medical societies, imbuing them with the conviction, that with a very few exceptions, our oldtime medical societies were indifferent or incompetent to represent and promote the economic interests of the hour of the medical profession. These physicians proceeded of late to organize medical societies or leagues for the express purpose of dealing with the economics of medicine exclusively as the older societies deal with the science of medicine only. I refer here to the Brooklyn Physicians' Economic League, the Physicians' Protective League of New York and the Physicians' League of the Bronx.

It is the spirit that animates these medico-economic leagues that has been active from the beginning in the two societies which united to organize the Federation of the Medical Societies' Economic League. The method of agitation to create a medico-economic movement was somewhat different but the purpose and goal in view was and is the same. The Medical Societies' Economic League was organized to serve as a central organization in which every medical society actively and from principle engaged in the solution of the economic problems within the practice of medicine is invited to be represented by a delegation. It stands and works for systematic and organized cooperation between the medico-economic societies or leagues that already exist and the new ones that were sure to be organized shortly all over Greater New York.

The federal organization in whose name I have delivered my address to-night is pledged to and based upon the principle of medico-economic unionism.

HOW THE PRESENT HOSPITAL SITUATION AFFECTS THE GENERAL PRACTITIONERS.

BY

THOMAS DIXON, M. D.,
Brooklyn, N. Y.

History shows us that the credit of the origin of the first hospitals is not due to medicine, but to religion. So far as our knowledge of history goes, we find that hospitals, as we understand them, have been the outcome of only two or three civilizations, namely, that of Buddhism, the fire-worshippers of Persia and the Christian civilization. It cannot be due to the degree of civiiization, for both Greece and Rome, in many ways, reached a higher state of civilization than did the early followers of Buddha or Christ; and yet hospitals for the sick poor did not exist to any great extent, if at all among them. It may be said that their laws were so perfect and efficiently carried out, that hospitals such as we have were not needed; but hospitals must have been necessary after battles, when the soldiers were far removed from their homes. A more plausible

excuse would be to say that the science of medicine had not advanced to the same extent as among the Buddhists and early Christians. Beyond question hospitals for the purpose of treating the sick poor were founded in India among the Buddhists, several hundred years before the advent of Christ and if they did excel in medicine, judging by the experience of today, it is more than probable that much of this knowledge was acquired from the advantages afforded by their hospitals for the study and practice of medicine. During the reign of Asoka, who died 226 B. C., the Buddhists cut on rocks their edicts on hospitals, one of which, dated 220 B. C., can be seen today. It directs that along the routes of travel hospitals shall be erected, that they be well provided with instruments and medicines and skillful physicians are to be appointed to administer them, at the expense of the state. The fire-worshippers from the earliest times were obliged by their laws to provide suitable houses for the suffering poor of their community, and the King to furnish the best medical treatment for the inmates free of all cost. It is said that the sick were treated in the temples of Esculapius 1134 B. C., but there is no evidence that these temples were used for the purpose of treating the sick poor; still they were in some respects similar to our hospitals, the same rule being in vogue at that time as exists today only in a modified form, of having tablets suspended on the walls, upon which were recorded the history and treatment of the individual cases of disease. After the birth of Christ, when his words began to reach the hearts of men and lead them to acts of kindness, and when Jerusalem and the roads approaching it were crowded with pilgrims, special accommodations for the use of those taken sick were established in connection with these caravansaries. Afterward when monasteries and convents were established, they were the resting places of pilgrims, and in these we find there were special apartments arranged for the sick. Among the earliest hospitals on record in Europe is one built at Rome by a Roman lady in 370 A. D., and from this small beginning the building of hospitals for the sick poor gradually extended over the continent. They were presided over by the clergy who treated all comers, charging no fees but accepted what was handed to them, and were regarded by the people as supplicants. Their methods of treating the sick were clouded in ignorance and the frightful mortality shown in these institutions engendered so much fear that the people would only patronize them under compulsion. The progress of science up to the beginning of the 18th century practically had not reached the subject of hospitals. The civil hospitals were still in the hands of the ecclesiastics; and even in Paris, then the greatest scientific centre of the world, they were, according to the accounts of numerous authorities in a shocking condition but now conditions were progressing slowly toward betterment. Science was beginning to take an interest in institutions for the care of the sick and were gradually coming under the control of educated medical men. From this period dates the evolution of the hospital toward more scientific and rational treatment of the sick, the improvement being continuous up to the present time. The earliest evidence we have of hospitals in America comes from descriptions of the Aztec civilization, which says hospitals were established in the principal cities, for the cure of the sick, and permanent refuge for disabled soldiers;

and surgeons were placed over them. There is abundant evidence to show that the Aztecs came from Eastern Asia, and that their civilization originated in Buddhist ideas. Like the Buddhists, their knowledge of medicine was considerable, and it is possible that the idea of the hospital may have been directly derived from them. The first account of a hospital in the territory now known as the United States is of one in use on Manhattan Island established in 1658 for the reception of sick soldiers who had been previously billeted on private families, and for the West India Company's negroes. Early in the nineteenth century pest-houses were established at Salem, Massachusetts, at New York and Charleston, and in 1717 a hospital for contagious diseases was built at Boston. In 1750 there originated a movement to build a hospital in the city of Philadelphia. The charter was granted on the 6th of May, 1751; temporary buildings were used till 1755, when the cornerstone of the present Pennsylvania Hospital building was laid, but the original plan was not completed until 1805. The hospital built on the original plan is now in use. This was the first chartered hospital of this country. The scientific and philosophical works of Benjamin Franklin had a marked influence in educating the people of this country in the practical application of the teachings of sanitary science, and from his connection with the Pennsylvania Hospital, and his writings on ventilation, stoves, etc., it seems that to him is due the credit of influencing the selection of so good a plan. An account of the establishment and growth of institutions in Brooklyn for care of the sick or injured carries us back no further than the second quarter of the nineteenth century, for it was not until 1839 that a hospital was established here; but the medical history of the territory now occupied by the city begins with the advent of the first medical man in Brooklyn. His name was Paulus Van Der Beech and he arrived here in 1644, or not long after. There was not much sickness among the hardy Dutch settlers of those times that could not be cured by means of housewifery medical lore, and so perforce, Dr. Van Der Beech became a sort of jack of all trades and, later in his history, is spoken of as Dr. Paulus, surgeon and farmer. He prospered and grew rich, according to the chronicle, but it was not by physicing folks. Geradus Willeme Beekman was the next doctor to settle in the village and he, it seems, combined two avocations now esteemed as highly profitable, as he is described as having been a physician and politician and he remained an office-holder until the time of his death. Later in the records there is an account of a Dr. Nerbury presenting a bill of £6 4s against the authorities for taking care of a poor man at Strykers at Flatbush. The first actual hospital established in Brooklyn was a county institution known as the Kings County Hospital in operation since 1839 under the supervision of the Department of Charities. The early history of combination hospitals (by combination hospitals the writer means those which receive both pay and charity patients) in Brooklyn starts with the incorporation of the Brooklyn City Hospital in 1845. The founding of this hospital was due to the energy of Dr. Isaac J. Rapelyea, President of the Medical Society of Kings County, who earnestly interested himself in the matter for ten years previous to its incorporation. In addition to the hospitals mentioned there have been incorporated in Brooklyn during the last half century some 25 others, most all of which run dispen-

saries in connection therewith. The executive management is alike in all the same as was in vogue over fifty years ago. There is the medical board that controls the workings of the hospital composed of the chief physician of each staff, a board of trustees to which it reports and which controls the finances, a superintendent whose duty is to supervise the running of the hospital and a registrar who records the names and addresses of applicants for treatment. Exception should be made to those hospitals under ecclesiastic control; they report direct to the church or religious societies which control them. Owing to the zeal of charitably disposed people of this community we now have in Brooklyn an over-supply of hospitals and as it is with commodities when there is an oversupply the competition is fiercest, so we find ourselves in the amazing situation of a competition among hospitals, not only for pay patients, but for charitable ones. This is an amusing and profitable situation for the public, and as for the pauper it gives him an added dignity, for he is in demand. He is welcomed with open arms by the superintendent and registrar for the more patients shown in the annual report the less likely they are to lose their positions. No one need pay for medical or surgical attendance in this city unless he so desires. There is no adequate investigation of applicants to hospitals or dispensaries as to their ability to pay. What would be thought of a merchant who gave a line of credit to a prospective customer without first consulting Bradstreet's. This is certainly a starving proposition to the general practitioner and even for those who have hospital connections, their private practice is being ruined by such a system. We cannot blame the public for taking advantage of this situation. It is human nature to refuse to pay for something that you see others receiving for nothing. Another cause of complaint from the general practitioner is the matter of consultation. For example: The general man has been the doctor of a family for years, their friend, confident and advisor in time of afflictions. He has brought the little ones into the world, has seen them grow up; the whole family thinks him the best and most skillful doctor the world ever produced. Suddenly an occasion arises, the doctor is called in, finds the head of the family ill. Symptoms are obscure, surgical interference seems to be indicated. Consultation is suggested. This rather surprises patient, as the average person thinks a doctor should excel in all branches. A consultant is brought in, of necessity a man with hospital connections and finds an operation requisite, takes the general man aside and tells him so, pockets his 10, 15, 25 or 50 consultation fee, and is off. The poor general man receives $2 for his call. Now the embarrassing time arrives for the family physician, that is, to break the news to his patient. He tells him as gently as possible that an operation is necessary, Well, go ahead and do it, replies the patient. This is where the family physician begins to hem and haw, he is plainly embarrassed, he feels his incapacity, he has never been able to secure a hospital position, for they are very difficult to obtain in first class institutions, so how could he know operative technique? He informs his patient the operation must be done at a hospital. Well, replies patient, all right, you can do it there, but I cannot, says the doctor, for the rules of the hospital permit only those on its staff to operate. The reputation of the family doctor in the mind of his patient is

now on the ebb. The doctor tells his patient, "now don't worry, I will be at the hospital and assist in the operation." He knows he is fibbing, for he will not be allowed to lay a hand on his patient when there. Patient goes to the hospital and is operated upon by the consultant with hospital connections. Family doctor is simply a spectator in the operating room. After the operation he calls on his patient, who naturally expects him to dress the wound, but no, that is contrary to the rules of the hospital. This pathetic little scene in sick rooms and hospitals occurs day after day in our city. What is the result? The surgeon receives his fee, the family doctor nothing. If he requests pay for time spent at hospital it is refused and he is told that as he had no hand in the operation his visits could not be considered in any other way than social ones. His reputation is shattered in that family, and when sickness comes again the surgeon who has demonstrated his skill is called for. He states out of courtesy to the family physician his consent must first be obtained. Consent is obtained, for what can the doctor do, if the family insists? He has lost his patient and is left a prey to his own melancholy reflexions. Troubles in the profession are not entirely confined to the general practitioner. It is the constant complaint of those on hospitals staffs that the chief surgeon does all the operating. To be sure he is responsible for the work of his staff, and he may have some men on it who are constitutionally unfit for the work; still where there is such general complaint there must be reason. How can we learn if the opportunity to operate never offers? There are men on hospital staffs in this city, have been there for years and have yet had no opportunity to do only the most trivial operations. It seems as if there is some subtile fascination to some men for operations; is it the mechanical part? Is it the feeling of exhilaration which comes to the surgeon after a successful operation, or is it from a selfish motive to keep others out of the field? I do not know, but what I do know, is that on some hospital staffs very few operations are passed around. I recall the unfortunate experience of a man who has for five years been on the staff of one of our hospitals in this city. In all that time he had only been successful in securing a few trivial operations. At last, despairing of ever obtaining material in the hospital, he hustled around and sent in a patient from the outside, asked his chief of staff to be permitted to operate on the case under his supervision, which was agreed. Every surgeon can look back to the time when he first began to operate and can appreciate the emotions of this assistant with a prospective operation in sight. He studied his books diligently, held a knife similar to the one to be used in the operation in the necessary position day after day, his last thought at night and the first in the morning was of the operation, and being a church member, he prayed nightly to his Father in Heaven for success. The eventful day of operation arrived. He went with his chief to the wash room, carefully scrubbed his hands and arms with neutral soap and sterilized them carefully. The two proceeded to the operating room, put on aseptic gowns. The member of the staff started forward to pick up the operating knife to do the operation, but suddenly his chief leaned over, picked it up, and did the operation, leaving him standing there rooted to the spot astonished and mortified before the operating room staff, but nevertheless perfectly

sterile. After hearing this man's story I am inclined to think the element of fascination enters into operative work, for he informs me that his chief was always kind in other respects and painstaking in giving information on the work, but when it came to operating, the line was drawn taut.

Now, the remedy for present conditions: State Board of Surgeons should be appointed by the governor before whom the general practitioner could go and pass a clinical examination, receiving a certificate therefrom, entitling him to free material for operative work in any charity hospital in this state; that there be no combination hospitals, that is, they must be either pay or free; that all applicants for medical or surgical positions in hospitals and all applicants for promotion therein should pass a civil service examination; that the superintendents and registrar of hospitals be compelled to take a civil service examination; that all applicants for free treatment at hospitals be adequately investigated as to their financial condition and that this investigation be in the hands of those not interested in the hospital management. The writer would extremely regret, should any of his hearers think the purport of this paper is to condemn hospitals per se for we may well be proud of them and of the skillful men who compose their staffs, and who are constantly making great sacrifices for the welfare of the public. The medical and surgical work of our hospitals leaves nothing to be desired, but the business end cannot be too severely condemned. Any system of management which can permit favoritism and selfishness to be a controlling feature must surely fail. Great changes have come in every line of human endeavor during the past 50 years, yet hospital management is the same as it was half a century ago. We are the laughing stock of the business world and the press on account of our business methods. Altruism has been overdone in our profession. We not only do harm to ourselves by the giving of indiscriminate charity but we do harm to the people at large by sapping their independence. For the great services we render to the community we are entitled to a dignified position therein. Wilkens Micawber was right when he said that a man financially embarrassed was with the generality of people at a disadvantage. Great unrest is now in the profession under present conditions. A change is bound to come. The handwriting is on the wall. Those who would resist the tendency of the times will find that reputations, which have taken years to build up, will fall as a house of cards.

SCIENTIFIC DISINFECTION AND WHAT IT CAN SAVE US.

BY

J. T. AINSLIE WALKER, F. R. S. M., F. C. S.,
New York City.

We have become so accustomed to accept as matters of course the ceaseless vigilance and unfailing skill of our national health guardians, that the mere suggestion that any clearly defined and recognized prophylactic measure may not receive at their hands its due consideration appears little short of heresy. There are, however, reasonable grounds for questioning whether one at least of the weapons in the armoury of preventive medicine—to wit, disinfection—might not, to the great advantage of the public health, be utilized in a more thorough and systematic manner than is the case at present. With a view to enable the

reader to form his own opinion on the subject, it is the purpose of this article to present certain arguments in favor of a wider adoption of scientific disinfection as a practical means of checking the dissemination of infection. It should be scarcely necessary to point out that this task is undertaken in no captious spirit, for to few people have been given better opportunities than to the writer of fully appreciating the magnificent and unwearying efforts of public health officials—both here and abroad—to cope with the insidious onslaught of infectious disease; in this respect, it may be observed, no nation is better served than the American nation.

At first sight the subject of disinfection, viewed in the perspective of other sanitary reforms, may appear to be a somewhat unimportant one. Such, however, is not the correct view; for just as a chain is no stronger than its weakest link, so also is the efficiency of any system of hygiene limited by the least efficient of its items. Inasmuch as disinfection aims at the prevention of infectious disease, it may perhaps be desirable to explain that throughout these observations the term is used to signify the process, not only as applied against known disease, but also as employed to prevent its incidence. In the former case there is very little to be said, for once an infectious outbreak has made its appearance, disinfection in one form or another is rarely omitted—albeit not invariably carried out in the manner best calculated to ensure beneficial results. In the latter, disinfection is seldom seriously contemplated, though on the principle that "prevention is better than cure," these are precisely the conditions under which it could be employed most profitably.

Disinfection Can Prevent Thousands of Cases of Consumption. As a preventive of consumption, more than of any other disease, disinfection is essential. In the words of Surgeon-Gen. Sternberg, the eminent bacteriologist: "there can be no tuberculosis without the tubercle bacillus." "Every child in school," he adds, "and every day laborer should be made to realize that the tubercle bacillus is present in the sputum of persons who have pulmonary tuberculosis, and that this is the source from which the vast majority of the cases originate." The French scientist, Cornet, has estimated that over 7,000,000,000 tubercle bacilli may be thrown off daily in the sputum from a single individual.

The danger of the spread of infection through tuberculous sputum is accentuated by the very nature of the disease. If it were practicable to treat all cases of consumption in their earliest stages, the control of infection would become an easy matter. Unfortunately, however, this is not the case, and usually until the disease is far advanced the sufferer pursues his ordinary avocation, a source of danger not only to all with whom he comes in direct contact but to the community at large. This statement should not be read as a reproach against the consumptive, who, powerless to seek relief in the treatment which his disease demands, is too often compelled, under his heavy disabilities to maintain the struggle for existence. Even though he exercise the utmost precaution in the disposal of his sputum—even though he never spit at all—the danger of infection, though diminished, is by no means absent: for in coughing, in sneezing, even in ordinary conversation, he cannot avoid the diffusion of fine particles of spray which

under microscopical examination are found to be impregnated with the germs of the disease. With these facts in mind the infective potentiality of every consumptive will be realized. He spreads infection in two ways—directly, to persons with whom he comes in contact, and indirectly through the medium of the places which he frequents—his home, his office, the railroad car or other public vehicle, the church, the theatre, the restaurant—in fact, wherever he goes.

Of all places certain to be infected by the occupation of a consumptive, the most common is his own home. It is a well recognized fact that consumption is to a large extent a house disease, i. e., that it may be contracted by a person susceptible to the disease, through the occupation of a house which has been infected by a previous sufferer. The Scotch Local Government Board in a circular on Administrative Control of Pulmonary Phthisis, declares: "It has been clearly shown that new cases of pulmonary phthisis have originated from rooms previously occupied by phthisical cases, and this is now held to be one of the commonest sources of infection." Well authenticated proofs of the accuracy of this statement are not lacking. The most frequently cited is perhaps that of the French scientist, Brouardel, who relates that twenty-three clerks in one office succumbed to the disease in eleven years after it first occurred in that particular office.

The following grave warning is taken from a Bulletin of the Maine State Board of Health:

"Many times it has been observed that after pulmonary tuberculosis has once been introduced into a house death follows, for years thereafter, the fatalities extending, it may be, to several families who successively occupy that house, and it appears to make but little difference whether there are or are not previous family histories of consumption. The explanation of these successive tragedies is simply that due precaution against the transmission of infection from person to person has not been observed, or that infected rooms and things have been left without disinfection."

Endless examples could be cited of the appalling extent to which consumption may be spread through infected houses, but they are unnecessary, as there is no longer room for doubt that infection is disseminated in this manner.

In the face of this universal danger to the public health, it follows that the first preventive measure must be the destruction of the tubercle bacillus. In this connection Surgeon-Gen. Sternberg is most emphatic: "Every effort should be made to destroy the bacillus wherever it may be found." Now we know where the bacillus may be found, and we must ask therefore how it can be destroyed when it has been found. The indisputable reply is, in the systematic disinfection of all places known to harbor, or *suspected of harboring* the germs of the disease. Where fresh air and sunlight have free access, there is little need for other measures, for these natural disinfecting agents may be trusted to destroy the germs of consumption and other diseases. But where this is not the case (as in the majority of places which require disinfection) their functions must be performed by a chemical substitute.

Authoritative experience is clear on this point: the systematic disinfection of all places habitually occupied by consumptives is imperative. The English Local Government Board, in a Memorandum on Administrative Measures against Tuberculosis

says: "disinfection should always be carried out when the patient changes his address." The Scotch Local Government Board is even more explicit: "When persons suffering from phthisis are treated in their own home the local authority should see that disinfection is carried out at frequent intervals. Not only the homes but also the workshops or other places where consumptives have been employed should be carefully and thoroughly disinfected." The Ontario Board of Health has recommended legislative action in the direction of enforced disinfection of premises upon the removal, recovery, or death of the subjects of the disease. This recommendation is expected to have the force of law during the present year, and a number of cities in Ontario have already adopted it. The Health Department of Vienna in new rules relating to the notification of infectious disease, insists upon "a thorough disinfection of any place where a tubercular patient has lived—when he changes his abode, goes into a hospital or dies." Similar measures are carried out in Berlin. During the first 15 months in which compulsory notification of consumption was in force in Edinburgh, the Public Health Committee disinfected no fewer than 667 apartments and 7,856 separate articles.

In view of these examples of what is done in various parts of the world in the form of house disinfection, it should be unnecessary to emphasize the value of this work. The systematic disinfection of vehicles and other places of public resort, which, as has been shown, may become infected in the same manner, would, without doubt, prove a valuable preventive of consumption. This applies with peculiar force to subway cars, for not only are they deprived of the disinfecting influence of fresh air and sunlight, but they are habitually overcrowded by all sorts and conditions of people, including, without doubt, a considerable proportion of consumptives. What has been said of tuberculosis applies with equal force to other contagious diseases, and to such minor ailments as sore throat, 'colds,' catarrh, etc.

How Healthy Families Contract Diseases from Families They Never See. The laundry strike in New York last year, served to focus public attention upon the unsanitary conditions which prevail in many of these concerns. A laundryman, giving evidence at the State Labor Commission's inquiry into the cause of the strike, said "the wash from a home that may be infected with disease commingles with the clothing of other families." Another stated that "straight white goods" only are washed at boiling temperature. Undergarments, composed as they are, for the most part, of silk or wool, and consequently, the most likely to harbor infection, *cannot be boiled*—as a matter of fact they are never heated above 100° F.—and the result is, in the words of one of the above mentioned authorities, that "any disease germs or vermin contained in any part of the wash might easily be transmitted to all." To quote from the same source: "many of the steam laundrymen like myself realize that the methods we employ cannot be expected to cleanse the clothes and that they may on the contrary, breed disease—but what are we to do?" It is evident that the laundrymen themselves are familiar with the danger of infection through the medium of soiled clothing, and would welcome any standardized remedy; and now the general public, having also realized this danger, must ask itself how it can be removed.

During this laundry strike a writer in the *New York Herald* suggested that, prior to washing, each bundle of clothing should be thoroughly moistened with an efficient disinfectant solution, a practice which is common in English public laundries. The introduction of this system was supported by a well-known medical man: "more than once I have had the strongest grounds of suspicion against the laundry," adding, that where clothing cannot be boiled, "the use of an efficient disinfectant becomes imperative." This procedure was first recommended by Sir Thomas Oliver, medical adviser on dangerous trades to the English Home Office, who in his "Diseases of Occupation" advocates the steeping of all parcels of clothing in a solution of standardized disinfectant immediately on their arrival at the laundry. Many laundrymen adopted this practice, and even thought it worth while to notify their customers of the fact, when sending home the weekly wash.

Fig. 1. Laundry Disinfection.

The Exposure of Children to Disease.

Another field for the profitable application of scientific disinfection is the public schoolroom. The Scotch Education Department in a memorandum on the Cleansing and Disinfecting of Schools says:

"The 'close smell' so familiar in the schoolroom is due partly to the subtle organic impurities of the air breathed out by the children, partly to the decomposition of organic dirt on the children's bodies or in the room. Such decomposition is normally caused by microbes. Hence, to cleanse a schoolroom properly, it is neces-

sary to destroy the germ-life as well as to remove the visible dirt. That is why periodic disinfection is advisable, even *when no known infectious disease has been present.*"

The routine disinfection of schoolroom floors has for several years been adopted abroad by a large number of education authorities with extremely beneficial results.

anteed efficiency. The Corporation of the City of London, too, has drawn up a list of regulations for the conduct of hairdressing saloons, one of which prescribes the use of a standardized disinfectant solution. It is extremely doubtful whether any of the various bodies concerned would have thought it advisable to adopt these measures had they not been able to assure them-

Fig. 2. Schoolroom Disinfection.

Periodic disinfection of public conveyances, offices, workshops, factories, etc., has also received a good deal of attention abroad and in one dangerous trade at least —that which involves the handling of horsehair and other material likely to spread anthrax—the regulations of the English Home Office now demand that this material *before being handled* shall be steeped in disinfectant of a certain guar-

selves in advance that by so doing they were taking advantage of a valuable prophylactic process.

But the 'Disinfectant' must Disinfect. It must, however, be borne in mind that unless the disinfectant employed be efficient, the process can possess no practical value and is merely a waste of time and money. But how, it may be asked, is the efficiency of a disinfectant to be guaranteed?

Until comparatively recent years, this question would have been difficult to answer, but with the aid of modern scientific methods it now presents no difficulty. In the method introduced by Dr. Samuel Rideal and the writer, the figure defining the germicidal value (known as the Rideal-Walker coefficient) is arrived at by dividing the strength of the disinfectant under test, which will kill a certain organism in a given time, by the strength of pure carbolic acid required to kill the same organism in the same time and under exactly similar conditions. For example, if a 1 in 2,000 solution of disinfectant X will kill a certain strain of typhoid bacillus in five minutes and a 1 in 100 solution of carbolic acid will kill the same organism in the same time, (and *at* the same time) the carbolic acid coefficient of X is 2,000 ÷ 100 = 20.0. Similarly, when dealing with a disinfectant of lower bactericidal power than carbolic acid, if a 1 in 70 solution is required to perform the same task as a 1 in 100 solution of carbolic acid, the coefficient is 70 ÷ 100 = 0.7.

By the use of this test, it is possible to determine the germicidal efficiency of any preparation, thus converting disinfection from a speculative and frequently useless process to a reliable and scientific method of preventing the spread of infection. That this view has received wide authoritative acceptance is made quite clear by the fact that the method referred to has been adopted for several years past by all Government Departments and Public Health authorities in England and throughout her Colonies.

Fig. 3. Car Disinfection.

Having shown the reasons which render disinfection necessary and how an efficient disinfectant may be selected, there remain only for consideration the method of application and the cost.

How a Disinfectant Should Be Used. The application of a disinfectant in the form of a liquid spray is for many reasons to be preferred to any attempt at gaseous disinfection, notably because a disinfectant when applied to infected matter in a liquid form is more likely to come into actual contact with the organism, and because the process tends to prevent dust, the common vehicle of infection, from rising into the air.

Aerial disinfection or sulphurous fumigation is still carried out in many places in this country, in spite of the fact that it has been repeatedly condemned by International Congresses and scientific experimenters generally. The inefficiency of this method of disinfection was first pointed out by Koch more than 30 years ago when he said that sulphur dioxide with, or without water, dry or damp was entirely useless for the disinfection of spores and quite unreliable for the disinfection of sporeless organisms in the presence of any superficial protection. This pronouncement has since been confirmed by numerous other investigators, among them Surgeon-Gen. Sternberg, who characterized sulphurous fumigation as a farce, and the *British Medical Journal* which declared it to be "unreliable in laboratory use and simply ridiculous in practice."

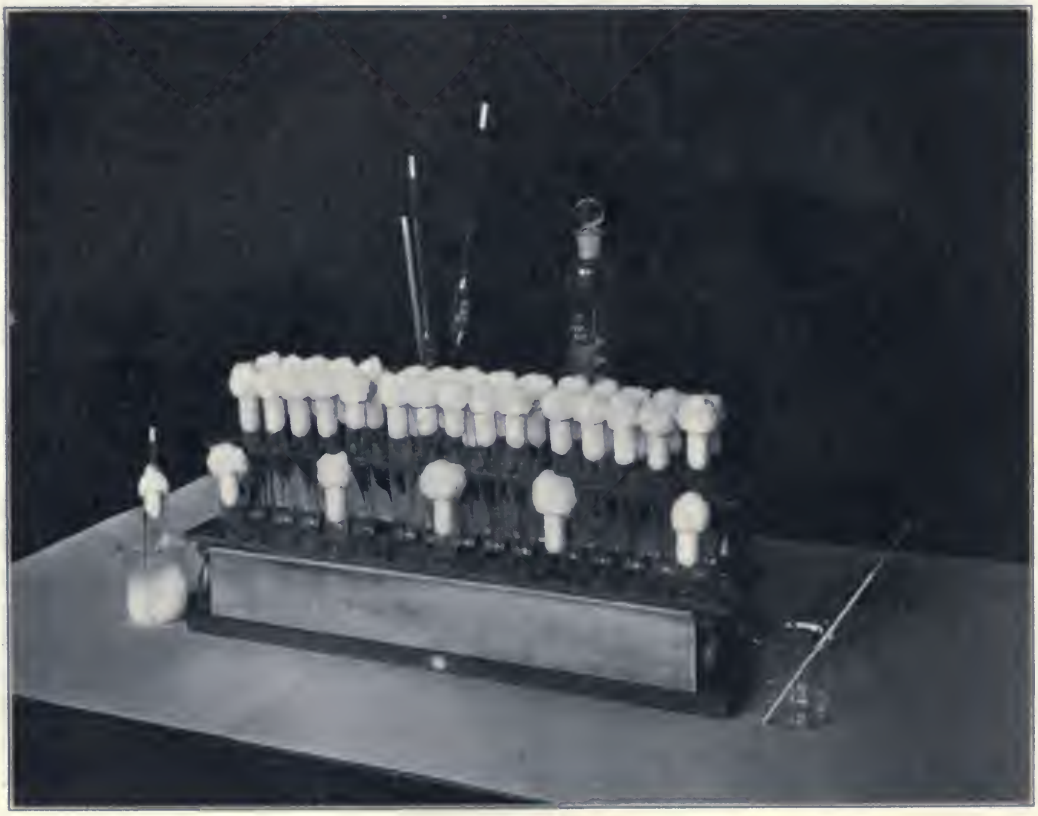


Fig. 4. Rideal-Walker Apparatus.

Apart from the small germicidal effect of this process upon the majority of micro-organisms, the conditions necessary to ensure any effect at all are so exacting as to render the process quite unsuitable for ordinary purposes. It is essential for instance, that the apartment under treatment be hermetically sealed and remain in that condition for at least 24 hours after the completion of fumigation. The atmosphere, too, must possess a certain degree of moisture: but as to what degree even experts differ, as pointed out by Dr. Alvah H. Doty in his "Prevention of Infectious Diseases." A circumstance so common and seemingly trivial as the presence of a lime-washed ceiling, which will absorb a considerable quantity of gas, may be sufficient to nullify the whole process, while the fumes are not only injurious to the contents of the room, but have been known to prove fatal to those who have inhaled them.

Contrary to the generally accepted notion as to the use of formaldehyde for fumigating rooms, this disinfectant *does not act in the form of a vapor or gas;* in practice, it is dissolved in the minute droplets which result from the condensation of steam, in the absence of which formaldehyde has no bactericidal action whatever. Water will take up in solution forty per cent. of formaldehyde gas, in which form it is known officially in the *United States Pharmacopoeia* as "formaldehyde solution," the Rideal-Walker coefficient of which is 0.3, i. e., it has about one third the efficiency of pure carbolic acid. If we take one part of carbolic acid in twenty parts of water as our standard of efficiency, to prepare a solution of formaldehyde capable of doing the same work, one part must be mixed with six parts of water.

We now see the difficulty of obtaining uniformly trustworthy results when working with formaldehyde. If too much steam is admitted into the chamber the ultimate dilution produced may be too weak, and if too little steam is admitted, part of the formaldehyde will be unavailable, i. e., it will remain in the gaseous form, which, as already explained, has no bactericidal action.

The *British Medical Journal* for November 3, 1894, referring to the disinfection of rooms by fumigation, stated: "On the ground even of economy there is no comparison between this obsolete process and a disinfectant spray; and while cases of renewed house infection are familiar to almost every medical officer in this country, we have Dr. Dujardin-Beaumetz's authority for saying that where the disinfectant spray has been introduced they are practically unknown in France."

For these reasons fumigation is rapidly being superseded by the liquid spray as a method of house disinfection. Not only is the latter process so simple that any able bodied person can execute it, but from the fact that the disinfectant is brought to bear upon the germ direct, whereas, in fumigation, the medium of contact is the atmosphere, it must follow that efficient disinfection is far more likely to be accomplished. The application of a liquid disinfectant is very simple. In the case of the floors—the most important consideration—it may be applied by means of a fine rosehead sprinkler or garden syringe. For the walls and ceilings—which do not need to be disinfected so frequently as the floors—a spraying machine should be used—one which diffuses so fine a spray that with ordinary care no part of the surface escapes treatment.

Spraying in the method indicated will be quite sufficient to ensure efficient disinfection. It should always form a preliminary to the occupation of a new residence.

The Cost of Efficient Disinfection is Not Prohibitive. It would be somewhat a counsel of despair if these necessary measures of disinfection could only be efficiently carried out at a high cost. Happily it is not so; a glance at the table given below will show how readily various disinfectants can be compared in this respect by the application of the test described above.

Sample.	Organism.	Rideal-Walker Coefficient.	Price Per Gal.	Cost of disinfectant equivalent to one gallon of Carbolic Acid.
A	B. typhosus	20.0	$1.50	$ .07
B	"	5.0	1.00	.20
C	"	1.0	1.00	1.00
D	"	2.5	3.40	1.36
E	"	2.5	3.50	1.40
F	"	0.3	1.50	5.00

Thus, A, with a coefficient of 20—i. e., having 20 times the strength of pure carbolic acid—is guaranteed to do the work of one gallon of the latter at a cost of 7c; to perform the same work with F would cost $5.00. Similar comparisons can be made with any other disinfectants, the cost per unit of work—i. e., the work capable of being performed by one gallon of pure carbolic acid—being obtained by dividing the price per gallon by the coefficient.

Using a spray and working with a 1 in 500 solution of A, a superficial area of 10,000 square feet could be disinfected daily at a cost of (approximately) 25 cents per week.

The cost is not therefore prohibitive, and to the public health the gain is out of all proportion to the actual cost, for it is clear that efficient disinfection may be employed in the prophylaxis of disease with a certainty that it provides against the spread of infection an important safeguard which no one concerned can be justified in omitting to apply.

ALCOHOLIC PSYCHOSIS AND PSYCHOPATHIC DRINKERS.

BY

TOM A. WILLIAMS, MB., CM. Edin., Corresp. Memb. Socs. of Neurol. and Psychol. of Paris; Neurologist to Epiphany Free Dispensary.
Washington, D. C.

The Alcoholic Psychosis.

It is frequently stated that alcohol causes a large part of the insanity which prevails. In the asylum population the proportion of cases due to alcohol is variously estimated at from 10-30%. A little examination of the data will show the unreliability of the conclusion that alcohol is the cause of the psychosis in a great many of these cases.

Examine the following case for example:

A carpenter, born 1870 was admitted to hospital in 1911 because of a subacute condition caused by chronic alcoholism. He drank at least two or three absinthes a day, and a good quantity of white and red wines. When under the influence of these intoxicants he developed ideas of persecution, with hallucination of hearing, smell and taste, and general disturbance of the sensibility.

He sent letters to the chief of police complaining of these persecutions; and he also became at the same time exceedingly jealous of his wife. At the hospital he improved sufficiently to hide his hallucina-

tions and ideas of persecution and left there apparently cured. He began again at once to drink and to give free rein to his delirious ideas. He again wrote to the chief of police asking for protection against his persecutors. He threatened to take his wife's life, and slept with an axe at his bedside to protect himself against his enemies.

He returned to hospital but his hallucinations of hearing continued. He did not recognize the voices but heard them distinctly from all directions. His hallucinations of taste and smell also returned.

He worked regularly; but his intelligence was weakened. He understood his condition well enough to deny his hallucinations and to dissimulate his condition when he wished to leave the hospital.

Such cases might be multiplied.

Now, when it is remembered that the chief characters of the psychosis of alcohol are visual hallucinations, fantastical recitals, impulsive acts and automatic suggestibility, no one can fail to see how far removed is the symdrome of auditory hallucinations, capacity for concealing his intentions, purposeful jealousy and obstinacy in the delusion ideas. This man's case then is not that of alcoholic psychosis; it is not any different from the paranoid syndrome of persecution which occurs in the deteriorating psychosis entirely apart from the taking of alcohol. It is possible, however, that the disorders of body chemistry which are now believed to be the cause of the psychological manifestations by their effects upon the brain of such cases may be favored by alcoholic intoxication. But we do not know this. Hence to include such cases in statistics is to reach conclusions by means of an unverified premise.

Psychopathic Drinkers.

There are persons who consume much alcohol, and to their detriment, who are in no way psychopathic, but who indulge themselves because it is the custom to do so, because it is believed in their milieu that alcoholic beverages are beneficial and proper articles of consumption. Such custom and belief was almost universal in the British Isles twenty years ago. Among the French working men and the burgers of Germany it is still heresy to think otherwise. Although the harm done by their habits is not insignificant in these classes of people, yet their habits are to be imputed to ignorance rather than to degeneracy even where excesses are concerned.

But the majority of persons who drink to excess do so because already psychopathic; they may be merely over suggestible, easily led, not to say weak minded; they can be influenced in spite of their convictions; or sensuality may reign over the reason they have.

On the other hand, there are persons of quite opposite character who take to alcohol or other narcotic as a nepenthe for a state of internal discomfort, feeling of inadequacy, restless discontent, or even acute misery.

The cause of this state may be a disorder of body chemistry, such as is seen in perturbation of the function of the thyroid gland, or in inadequacy of the renal excretion, or what used to be called torpid liver, or in conditions of high blood pressure, or in the general state of toxemia which leads to sleeplessness, or in chronic tiredness.

The disorders which occur as a result of psychological perturbation may be in cause; anxiety, worry, grief, frustrated ambition, and chagrin, constant humiliation at the hands of those in authority and manifold similar causes. All these lead to a sentiment of incompleteness as it has been called. When the mind is obsessed thus, a familiar colloquialism bids the vic-

tim "forget it"; superfluous advice, the patient would if he knew how. If he knows alcohol or morphine, he does know how, and he forgets it. But although he loses the acute perceptions which keep in his consciousness psychological annoyances or physical discomforts, these are not compensated; they are merely unperceived; and the degradation of tissue changes produced by the poison, does not help the source of the psychopathy, for which compensation becomes more and more difficult as the struggle is postponed.

What then is to be done for such people? Should it not be obvious that when chemical perturbations are in cause, medical treatment is required? Surely, and the armamentarium of the physician is now-a-days vastly increased towards such ends.

Again, when the pathology of the patient is psychogenetic, we still have resources to meet the issue. Our studies of the last twenty years have placed an entirely different complexion upon the care of the disturbed in mind and the prevention of psychopathies. It is in childhood that the roots begin as a rule; and the prevention of nervousness in children (Author's article in *Archives of Pediat.*, Feb., 1913), Juvenile Psychasthenia, *Amer. Jour. Med. Scis.*, Dec., 1912), is the key to the prevention in the adult of the psychopathy which may lead to an addiction to alcohol or other narcotic. When an addiction forms it is again to the psychopathologist that recourse must be had in order to unravel the psychological tangle responsible for the feeling of inadequacy which leads to the addiction.[1] If a craving for the drug for its own sake has not replaced the taking of the drug as a solace, a cure can be effected.

1705 N Street.

[1]Author in *Medical Record*, 1912. Vol. I. Treatment of Psychasthenia Which Predisposes of Inebriety.

OPERATIONS UPON THE RECTUM UNDER LOCAL ANESTHESIA.[1]

BY

J. F. SAPHIR, M. D.

Attending Surgeon for Diseases of the Rectum and Anus, People's Hospital. Chief of Clinic for Diseases of the Rectum, German Polyklinik.

New York City.

I have occasion this evening to present to you a number of patients representing a series of very interesting rectal cases, operated under the influence of the various local anesthetics. I shall endeavor to demonstrate to you the advantages and disadvantages—the benefits as well as the objectionable features—of each of these local anesthetics, and to this end have selected representative cases from a series of 150 operated under the influence of a local anesthetic of one kind or another.

Rectal ailments are of such frequent occurrence that it is very rare to find a person who has reached middle age who has not at some time or other had some rectal trouble—in fact, rectal conditions are looked upon by some as a necessary inconvenience.

Due to the reluctance on the part of some patients to undergo operative treatment in the hospital, necessitating absence from business duties one or two weeks—the fear of taking a general anesthetic in others—and the impracticability in still others of undergoing general anesthesia, as in tubercular or other pulmonary affections, nephritic patients and cardiac cases, it has become necessary to administer relief by means of local anesthesia.

Local anesthesia has been in use for the past twenty years, Schleich being one of the first to arouse the interest of the medical profession in his infiltration

[1]Presented before the Eastern Medical Society, November 8th, 1912.

method of using cocaine. Dr. S. G. Gant has used local anesthesia very extensively for the past twelve years. Solutions of various strength have been used for the production of local anesthesia from 6% cocaine or B. eucaine solution down to ⅛% or 1/10% with equally gratifying results.

Solutions of sterile water have been used very successfully, and the most recent local anesthetic used, is the solution of quinine and urea hydrochloride ¼% to 1%.

For the production of local anesthesia about the rectum and anus, I use a syringe that I have had especially made and a description[1] of which was published sometime ago.

To illustrate that local anesthesia has a definite field in the modern treatment of rectal diseases, and to point out that its usefulness from a practical, economical and surgical point of view should be more generally recognized—I have selected the following cases:—

One case operated under ethyl chloride spray.

Two cases operated under cocaine hydrochloride solution.

Two cases operated under B. eucaine solution.

Three cases operated under sterile water solution.

Four cases operated under quinine and urea hydrochloride solution.

CASE I. B. G. Male. Tinsmith, age 34. Two years ago had an attack of hemorrhoids and was operated upon. Has been suffering with constipation for the past three years,—one year ago had another attack of hemorrhoids,—no bleeding. One week ago he noticed a protrusion at the anus which he could not replace, he felt very uncomfortable on sitting and standing, but had no real pain. On examination at the anal margin, a protrusion, bluish in color, the size of a cherry-pit, was discovered, and diagnosed as a thrombotic hemorrhoid.

With the ethyl chloride spray, the thrombotic hemorrhoid was anesthetized; then with a curved bistoury, the cataract operation was performed, the tumor transfixed, the clot turned out, the edges of the wound were clipped, the cavity curetted and a very narrow strip of moist gauze was placed into the cavity to prevent its refilling and for drainage purposes. This patient complained of some pain during anesthesia, "a sort of freezing." Had some pain the next day, but none thereafter and was not kept from his work.

CASE II. I. D. Male. Tailor, age 29. Three years ago was operated upon for fistula ani at Lebanon Hospital, but has noticed a discharge and moisture, accompanied with itching at the anus ever since. He complained of no bleeding and is not constipated, but he had occasional pain after prolonged sitting and has felt a drawing pain down the left leg. His chief complaint was the discharge and itching at the anus.

On examination, a discharge of pus was noted at the anal opening, and a distinct indurated area, which could easily be detected by palpation, was felt directly along the line of the scar left from the previous operation. On separating the buttocks, and everting the anus, some pus could be expressed by gentle pressure over the indurated area. On examination with a probe, a fistulous tract about 1½ inches in length was discovered, with its opening between the external and internal sphincter muscles. A diagnosis of blind internal fistula was made, a solution of ⅛% cocaine hydrochloride was injected along the indurated area, the fistula tract was opened up, the walls and base were swabbed with pure carbolic then washed with pure alcohol, a strip of moist gauze was inserted into the wound for proper drainage. a gauze pad and "T" binder were applied. The patient then went home and kept at his business.

CASE III. M. S. Male. Tailor, age 60. Complained of having had stomach trouble for the past two years. Had three to six movements a day accompanied with mucus;

[1] *New York Medical Journal*, Feb. 4, 1911.

had occasional bleeding and also protruding masses at the anus for the past 30 years. His immediate complaint was severe pain at the anus, and protrusion of tissue during stool. Although he had a frequent desire to defecate he could pass nothing but mucus. The attendant straining was accompanied with cramp-like pains in the lower abdomen. After each attempt to defecate he had to anoint the anus with vaseline, and through the aid of this was sometimes successful in returning the protruding mass with his fingers.

Examination revealed external and internal hemorrhoids, and a congestive coloproctitis with slight ulceration. A solution of ⅛% cocaine was injected into the protruding mucous membrane, until blanching of the tissues, and the tumor turned a glistening white. This indicated that we had produced local anesthesia. The tumor was then grasped with a clamp, and severed at the muco-cutaneous junction, dissected up as high as possible; a ligature was placed around the mass after tying off as much as possible of the redundant tissue. It was cut off, enough of the stump being left to prevent the ligature from slipping. He had no pain during the operation, only slight after-pain following the operation, and since then has had only one movement a day. Evidently this tumor acted as a foreign body, and brought on a reflex desire on the part of the rectum to expel this mass, thus causing a relative frequency of stool.

CASE IV. H. T. A. Male. Real estate broker, age 42. Has complained of "piles" for the past twelve years, with occasional bleeding, is constipated, and has resorted to the use of suppositories and salves for temporary relief. Ten months ago, he noticed after a hard evacuation, a burning pain at the anus, and also a drop or two of blood on the toilet paper; and since then he has had severe pain after every stool lasting for four or five hours. The pain is so severe that he actually is afraid to go to stool for fear of the pain he anticipates.

On examination, a protrusion was found at the posterior anal margin, commonly known as the "sentinel pile," and on separating its folds, a well marked *fissure* was discovered within the grasp of the sphincter muscle, much inflamed and exceedingly sensitive. A solution of B. eucaine ⅛% was injected with the Saphir syringe, about ½ inch posterior to the anal margin, into the tissues for a distance of about 1 to 1½ inches in depth. Then the sphincter muscle was cut through the fissure, perpendicularly to the transverse fibres of the sphincter muscle, relieving the spasm of the sphincter muscle at once. The skin-tags forming the "sentinel pile" were then clipped off, a strip of moist gauze was inserted into the wound for drainage, and a dry dressing and "T" binder were applied. The patient went home, went to business the following day, and called for daily treatment at my office. This man was a horseback riding enthusiast, and his participation in the pleasures of his favorite sport was not interrupted by the operation.

CASE V. J. B. Male. Broker, age 30. For the past five years he had noted a prominence between the end of the spine and the anal margin, which grew larger and larger until it is now the size of a walnut. Six weeks ago, he noticed pain and swelling. On application of hot poultices, an abscess formed and burst, and has been discharging ever since.

Examination disclosed a mass about the size of a walnut which was filled with the caseous matter of a broken-down cyst, and a fistulous tract with its internal opening between the external and internal sphincter muscles. With ⅛% eucaine hydrochloride solution, the tissues at the base of the dermoid cyst were injected, then along the fistulous tract, and deep down into the sphincter muscle until we got infiltration anesthesia. The dermoid cyst was then shelled out, the fistulous tract was opened up and curetted, the external sphincter muscle cut, a gauze drain inserted to the bottom of the wound, and finally a dry dressing and a "T" binder applied. The patient left the office, felt no pain and attended to his business the next day.

CASE VI. Mrs. D. G. Housewife, age 37. Complained of rectal trouble, protruding piles and bleeding for the past six years. One week ago, she noticed protrusions at the anus accompanied with bleeding after stool, the pain lasting for about one hour after stool. Patient was constipated, her condition necessitating the

regular use of cathartics. These protrusions came out regardless of any relationship to her bowel movements. Examination revealed two large internal hemorrhoids. With the Saphir syringe for local anesthesia, some sterile water was injected until the tissues became blanched and anemic, and the mucous membrane had turned a glistening white, showing that a sufficient amount of pressure had been put upon the nerve endings to produce local anesthesia (the same amount of pressure usually necessary to force the blood from the capillaries is enough to produce local anesthesia). The tumor was grasped with a clamp, pulled down, nicked at the mucocutaneous junction and dissected up from the muco-cutaneous junction, ligated as high up as possible and cut off leaving enough of the tissue to give the ligature a chance to hold. The patient had pain only while the water was injected (distention pain) but no pain during or after operation.

CASE VII. Mrs. P. L. Housewife, age 50. Has had hemorrhoids for the past nine years. Two months ago, she noticed protrusions at the rectum during stool; continuous pain after stool; stool followed by bleeding; was constipated to an extent necessitating daily use of cathartics. A diagnosis of internal hemorrhoids was made. A few drops of *water* were injected into the hemorrhoid until it was brought outside of the sphincter muscle, and turned a glistening white, when it was grasped by a clamp and pulled down, cut at the mucocutaneous junction and dissected up as far as I could reach, and the redundant tissue tied off with linen thread. This woman had slight pain during the injection of the water due to distention, but had no pain during or after the operation. She went home immediately after the operation and felt no inconvenience.

CASE VIII. B. B. Male. Trunk maker, age 29. Has suffered from hemorrhoids and constipation for the past two years. Five weeks ago after straining at stool he noticed a protrusion accompanied with pain on sitting and walking. He could not sit at all for two days. Has no bleeding, but could not replace this protrusion.

On examination I found a bluish lump, size of a small nut, diagnosed it as a thrombotic hemorrhoid injected a few drops of water, incised the tumor with a curved bistoury, turned the clot out, and after curetting the base and walls, put a small drain of plain moist gauze to prevent the cavity from refilling as well as to maintain proper drainage. The patient had no pain other than the distention pain during the injection of water, and after the operation went about his business.

CASE IX. S. M. Male. Public accountant, age 24. Had had no rectal trouble until the day he was brought to me. While walking rapidly along the street, on his way to catch a train, he complained of a sudden pain as if he were shot, his knees bent under him, and he could not walk any further. He fell to the ground and felt, as he explained it, "a sudden attack of piles."

He was brought into my office, when on examination, a large hard, bluish looking tumor was discovered at the anal margin. A diagnosis of thrombotic hemorrhoid was made. After injecting a few drops of water with the Saphir syringe, until the tissues had become blanched, the tumor was transfixed with a curved bistoury, and the blood clot turned out, with almost no pain. The edges of the incised wound were clipped and a narrow strip of plain moist gauze was passed to the bottom of the wound to insure proper drainage and to prevent another clot from forming. He was immediately relieved, was able to sit and to walk comfortably. In a short time he left the office, and has been attending to his duties ever since.

CASE X. N. S. Male. Actor, age 33. Has complained of "piles," for the past eight years. His last attack began six months ago with obstipation lasting for twelve days followed by a hemorrhage per mouth. He complains of constipation which necessitates his taking daily enemas or cathartics, and has also noticed protrusions at the anus and occasional bleeding after defecation. He also complains of pain in the lumbar region during and after defecation. Examination revealed a mass of four protruding internal hemorrhoids, which were ulcerated. When requested to strain, the tumors became congested and commenced to bleed from the ulcerated areas.

The man was sent to The People's Hospital, and prepared for operation with the usual antiseptic precautions; a ½% solution of quinine and urea hydrochloride was injected into each tumor until the tissues became blanched indicating that local anesthesia was produced; each tumor was then grasped individually with a clamp, pulled down, severed at the muco-cutaneous junction, dissected up from the submucous tissue, and ligated as high up as possible with linen thread. A dry dressing of sterile gauze and a "T" binder was applied, and the patient put to bed. He did not complain of any pain during or after the operation. The next morning, he was given a cathartic, which was effective; he had a good movement, was then placed on a full diet, and on the third day went home and to business.

CASE XI. I. G. Male. Presser, age 37. Complained of a mass protruding at the anus for the past four years. He was quite constipated, has had no bleeding, but had a small tumor the size of a nut externally, which he could not replace. A diagnosis of external hemorrhoid or skin-tag was made, a few drops of quinine and urea hydrochloride solution, ½%, was injected into the skin-tag, when after one or two minutes (it takes that length of time for this local anesthetic to act, and sometimes you must wait 20 minutes for the local anesthetic effect with quinine and urea hydrochloride solution), the skin-tag was removed in an inverted "V" shaped section, the vortex being toward the periphery. Two stitches were placed to pull the edges of the wound together. The wound healed by first intention, the patient suffered no pain. I would recommend the use of quinine and urea hydrochloride solution for skin-work in ¼% or ½% solutions in preference to water, or cocaine or eucaine, especially on account of the fact that there is greater amount of sensation in the skin than in the mucous membrane.

CASE XII. P. G. R. Male. Printer, age 28. Had had rectal trouble for the past four years, had protrusions during stool, was very constipated, had occasional bleeding with his stool, but no pain. Felt, however, as if his act of defecation was never completed, and that he must always take cathartics to secure a satisfactory movement.

Examination revealed strangulated internal hemorrhoids, somewhat ulcerated. This man objected to a general anesthetic. He was sent to The People's Hospital, walked up to the operating room, and was prepared for operation. A solution of quinine and urea hydrochloride ⅓% was injected into the hemorrhoids until the tissues became blanched. The hemorrhoids were then grasped with a clamp and pulled down. With a pair of blunt curved scissors the hemorrhoids were nicked at their muco-cutaneous junction and dissected up, so that the ligature after the operation would not lie within the grasp of the sphincter muscle. The hemorrhoids were then ligated as high up as possible with a heavy lien thread, and the hemorrhoids removed but not too close to the stump, so as not to allow the ligature to slip. The patient complained of absolutely no pain, got down from the operating table without assistance, went home and has been feeling comfortable since.

In conclusion I would add that of the local anesthetics used:

1. Ethyl chloride spray can be used in thrombotic hemorrhoids when external to the sphincter muscle, in opening abcesses or furuncles on the buttocks or about the anus, but is not practicable in rectal conditions within the rectum or above the anal or sphincteric margin.

2. B. eucaine solution can be used in all rectal conditions, but should be used in ⅛% or $^1/_{10}$% solutions, and although less toxic than cocaine may produce toxic effects on the patient within five or ten minutes after the operation.

3. Cocaine solution should never be used in rectal operations in stronger than ⅛% or $^1/_{10}$% solution, toxic symptoms showing themselves more frequently and sooner when cocaine is used about the rec-

tum, than when used at any other part of the body.

4. Patients operated under local anesthesia of cocaine or B. eucaine have no pain during injection of the solution or during operation, but often do complain of severe excruciating pain, weakness and faintness, attended with a cold sweat within about five or ten minutes after operation.

5. When using cocaine or B. eucaine solution for local anesthesia, it is wiser to insert a rectal suppository of morphine sulphate gr. ¼ before the operation, or to give a hypodermic of morphine sulphate gr. ¼ immediately after the operation, to control the severe pain which invariably follows the operation.

6. Sterile water solution while producing some distention pain during infiltration gives no pain during or after operation. While it is to be preferred in mucous membrane operations where the pain is almost *nil,* due to small nerve supply, it is not as feasible in skin work, where sensation is greater due to increased nerve supply.

7. Quinine and urea hydrochloride solution is the anesthetic of choice in rectal operations. A 1% solution should be used in mucous membrane work where sloughing followed by scar-tissue formation is desired, and a ¼% or ⅓% solution should be used in skin work. If used in stronger than ¼% or ⅓% solution in skin work primary union of the tissues will not be obtained. Quinine and urea hydrochloride solution produces anesthesia in from three to twenty minutes, but the anesthetic effect lasts for a period of from three to ten days, a sufficient length of time to allow wounds, resulting from ordinary rectal operations to heal perfectly.

118 First Street.

THE ACTION OF THE PERISTALTIC HORMONE AFTER ORAL ADMINISTRATION—A CLINICAL REPORT.

BY

H. J. ACHARD, M. D.,
Chicago, Ill.

Since Zuelzer investigated the function and action of the peristaltic hormone, a not inconsiderable number of reports on the efficiency of this substance in various conditions of constipation has appeared in German and American literature.

Zuelzer has assumed (*Die Therapie der Gegenwart,* 1911, p. 197) on the ground of his animal experiments that a peristaltic hormone is formed in the gastric mucosa during the process of digestion, and that this is most probably stored up in the spleen.

It will be remembered that the term hormone was coined by Starling, and that by it he designated a group of substances which are formed during the normal metabolic process of certain cells of the animal organism. Their significance lies in their dynamic influence upon the living cell, and they are secreted during the performance of the normal body functions, and carried by the blood stream to certain organs which they stimulate to a specific function.

The peristaltic hormone would then give the impetus, as it were, to the peristaltic waves throughout the intestinal tract, by which the contents of the intestines are propelled through the gut. It was found in animal experiment that after intramuscular or intravenous injection of the peristaltic hormone, a peristaltic wave may be observed, which passes from the pylorus down and continues to the rectum. This stimulation persists in animals as long as

half an hour. At the suggestion of Zuelzer the peristaltic hormone was prepared from the spleen of sheep by Schering of Berlin, and given the name of hormonal.

In clinical experiments it was found that from one-fourth or one-half hour to several hours after the intravenous administration of hormonal the intestines, which were hitherto entirely quiet, commenced to contract, which process resulted in more or less copious defecation. Such an effect was observed in several cases of chronic obstipation, and especially in post-operative paralysis of the intestines in which colonic injections of laxative solutions had been employed without result.

It was further noticed that the effect of a single dose of hormonal persisted for weeks and months, suggesting that the preparation exerted a lasting stimulating action upon certain nerve centers by which the process of peristalsis was regulated.

While the intravenous and the intramuscular administration of the peristaltic hormone is quite feasible in hospital practice, it is not always possible to persuade private patients to submit to the discomfort and to the pain, the more so as an absolute promise of results can, of course, not be given. There were certain cases of protracted and habitual constipation in which the administration of the remedy remained without results. For this reason, and still more for another reason, it appeared to me desirable to inquire whether the peristaltic hormone would not act just as well or at least satisfactorily if introduced into the stomach. The other point which led me to inquire into this problem was the following reasoning:

If the peristaltic hormone is normally secreted in the gastric mucous membrane during the process of gastric digestion and incites the production of the peristaltic wave, an insufficient digestion and an insufficient degree of peristalsis, leading to constipation, may at least in part be assumed to be caused by the deficiency of the peristaltic hormone in the gastric secretions.

It appeared to me *a priori* reasonable that the introduction of a plus of peristaltic hormone would lead to an improved peristalsis, and that the intramuscular or intravenous administration of the remedy which is always disagreeable and, as some of the reports suggest, not entirely without danger, could be avoided. Messrs. Schering and Glatz, of New York, very kindly transmitted to me a supply of hormonal in addition to the amount which I had bought myself for the purpose of determining the possibilities of their preparation by oral administration. The preparation was given to four persons, three of whom were in good, respectively, fair health, except for an obstinate constipation which had existed for years; while one is neurasthenic and has for many years suffered from intestinal insufficiency, malnutrition and other conditions in addition to a practically total atony of the lower bowel. These patients were selected on account of their intelligence because I could be sure that they would cooperate with me after having had the problem explained to them in detail.

The neurasthenic patient referred to, who is a man of fifty odd years, and a young man twenty years old, derived no benefit whatever from two doses of hormonal that had been taken after a preliminary cleaning out, and these two need therefore not be considered further in the present report.

The third subject of my experiment is a woman forty-four years old, unmarried,

with a history of uterine trouble, hemorrhoids, and constipation since puberty. She took twenty cubic centimeters of hormonal on April 3rd at 7 a. m., and felt, for the rest of the day, some dull frontal headache, some slight nausea, and a faint sensation in the epigastrium. These abnormal sensations disappeared by night. On the 7th of April a bowel movement occurred spontaneously, not a large one. It was not as hard or as painful as usually after several days of intermission. On the 8th the bowels again moved spontaneously, not very much; on the 9th, in the morning, fairly well. While the patient was writing her report she mentioned that she had some colicky pains and had to interrupt her work for the purpose of getting rid of a large amount of feces, the quantity of which astonished her.

Under date of April 16th the patient, who had received no further treatment for her constipation, wrote me that there had been no movement on the 13th, a good one on the 14th, a small one on the 15th, and two on the 16th; there occurred again a good movement on the 19th, and one on the 20th, so that the action seemed to have settled to one every other day. On the 27th the patient, to whom I had sent a second dose of hormonal, reported that she had not taken this because the first was still acting, a good movement every other day, and that they came very easily, without the former stress and pain. She said that she was very well satisfied so far. On the 28th of May the medicine was still working, except for five days after a trip to St. Louis which the lady undertook, and as railroad traveling always has a constipating effect on her this is not surprising. The important point is that a few days after her return home the bowel movements started again spontaneously and continued since.

In a report dated January 17, 1913, nine months after ingestion of the only dose taken, the patient writes to me that it is still active to some extent. "I am not quite as regular as the first half year, but I rarely skip a day. There is a little more difficulty than there was until about a month ago." I intend to give her another dose and hope that this will be sufficient.

The fourth patient is a woman of some thirty-six years, mother of two children. She is very short and very stout. Since an operation two years ago when, as far as I can determine, the ovaries were removed, constipation has been very obstinate, no bowel movement whatever occurring without artificial aid. This patient received 20 cc. of hormonal by mouth August 23rd, and derived excellent results from it, which became evident in the course of one week. Her bowels moved regularly daily without any assistance until last October, when the effect gradually wore off. At present the patient is as constipated as she ever was. She was to have reported for further treatment, but is one of those persons who cannot bring themselves to obey the orders of a physician, so that I am afraid that a positive benefit cannot be obtained.

It will be seen that in these two patients a single dose of hormonal taken by mouth had a very satisfactory effect which lasted for several months. Although one or two swallows do not make a summer, and although I observed such satisfactory results in only two cases out of four, they have seemed to me sufficiently important to be published, because I believe I am the only one to have administered hormonal by mouth; at least, in the literature at my disposal I have not seen any reports.

If it can be established that hormonal can exert its favorable action upon the peristalsis on being introduced directly into the

stomach, and if this action persists, at least fairly well, even if it is not as intense or as prolonged as after intramuscular or intravenous injection, our means of overcoming constipation with all its harmful consequences, and with all its immense power to produce injury to the organism, will have been strengthened materially. The important point to my mind is that if hormonal can be established as an efficient treatment for selected cases of constipation, we have in this preparation a physiological remedy, the use of which is *a priori* far preferable to that of any laxative or cathartic drug.

32 North State Street.

CAESAREAN SECTION WITH UNUSUAL BLADDER COMPLICATION—RECOVERY.

BY

HOWARD CRUTCHER, M. D.,
Roswell, New Mexico.

Mrs. B., a white married woman, aged 20, of excellent family history, menstruated last on February 7, 1912, and was taken with labor pains at eleven o'clock in the forenoon of November 30th. Being accustomed to a vigorous out-door life, she had eaten heartily of substantial edibles during her gestation. During the forenoon of December 1 the patient seems to have had many hard but fruitless labor pains, which continued well into the afternoon, when Dr. C. L. Parsons was summoned. Dr. Parsons soon learned that the patient was making no progress and I was called in consultation at 4:30 the same afternoon. I found a large, firm, immovable fetal head wedged into a bony outlet far too small to admit of possible hope of delivery by natural means. It was impossible to force the presenting head upward or to apply the forceps with success. The rectum protruded more than an inch and was black from pressure. The labia majora were swollen and edematous. Weighing all the conditions, I advised a prompt Caesarean section. There were assembled about the house numerous voluntary consultants whose ignorance and cowardice are invariably in inverse ratio to the volubility of their advice, but the patient and her family did not falter a moment when the true nature of the conditions were explained to them.

The patient was promptly removed to the Parsons Infirmary and preparations made for the Caesarean operation. Chloroform was given by Dr. O. R. Haymaker, and was kindly borne by the patient. With the assistance of Drs. D. H. Galloway and C. L. Parsons, and Miss Lela Wilson, nurse, the abdomen was opened in the median line, when, to our deep surprise, a fluctuating tumor of large size forced its way into the wound. The offending tissue was quickly identified as an enormously dilated bladder. It was necessary to press the uterus upward before a catheter could be introduced. Something over two quarts of urine was drawn off, when the uterus was brought into the ample abdominal wound and opened in the usual manner. An elastic ligature was for a moment applied to the lower segment of the uterus, a ten pound female child quickly removed and passed to the care of Dr. Parsons and Miss Wilson. The uterus was next cleared of placenta and membranes. The uterine wound was united with a single row of heavy interrupted catgut stitches very closely placed. I saw no occasion to overdo by a second line of stitches what appeared to be a perfect piece of coaptation.

The character of the peritoneal attachment rendered a second line with a view of burying the first row of knots out of the question. The parietal peritoneum, the fascia and the skin were united with individual rows of continuous catgut stitched. A large rubber drainage tube was inserted several inches into the uterus and about it were packed strips of medicated gauze.

The mother and child left the Infirmary on the eighteenth day in excellent condition, but it must not be supposed that the convalescence of the former was free from troublesome and even dangerous complications. The necessity for emptying the bladder during the operation caused a vexatious delay of eight minutes. While removing the child from the uterus several ounces of meconium escaped, soiling the tissues over a wide area. The child was not resuscitated without prolonged and determined efforts, lasting nearly half an hour. The protruded rectum proved to be a source of great distress. The bladder, from which trouble had been expected, resumed its regular functions with astonishing rapidity. The operation was completed shortly before nine P. M. of December 1. Thirty-six hours later the patient developed symptoms of acute intestinal obstruction. The pulse rose to 148, the temperature to 103, and bloating came on with alarming speed. The most energetic measures were immediately adopted, the result being the relief of an impacted colon which held more than six quarts of fecal masses of such density that they had to be removed from the rectum by mechanical means. The intestinal storm lasted several days, during which time the patient was relieved of an incredible quantity of hardened fecal matter. There was at no time the slightest indication of uterine or of peritoneal infection. The uterine drainage tube was removed at the end of the second day. The amount of blood lost during the operation was somewhat less than half that occurring during a normal labor. The fatty layer of the abdominal wall became infected, but gave no serious trouble.

This is my third Caesarean section, two performed for contraction of the bony outlet and one for central placenta praevia, all mothers and children being saved. I have lost sight of my first case, performed many years ago. The second patient was in the last stages of general tuberculosis, but lived long enough to demonstrate the value of prompt and efficient surgery.

Whilst the operation presents no great mechanical difficulties to an experienced surgeon, it imposes responsibilities of such a serious nature that its performance should never be undertaken by those who are unprepared by general training and ripened clinical experience to deal promptly and decisively with all its possible details and complications.

So far as known, this is the first reported case of Caesarean section in New Mexico. Whilst the conditions were not ideal by any means, the result shows that nothing material to the safety of the mother and child was overlooked in the necessary haste with which our preparations were made.

If suppuration at the root of the nail does not soon subside after providing drainage, it may be necessary to remove the nail. This should not be done too hastily, however. Persistence in daily disinfection of the space (iodine, hydrogen peroxide, etc.) and stimulation of the tissues (as by massage) will often be rewarded by saving the nail.—*Am. Jour. of Surg.*

A CASE OF CHRONIC COLITIS.

BY

J. W. WEINSTEIN, M. D.,

New York City.

Attending Physician to the Department of Digestive Diseases at the Vanderbilt Clinic.

It is usually customary in medical societies to present cases the chief interest of which is centered in diagnosis. Therapeutics is usually neglected or omitted entirely. In presenting my patient tonight, I have the honor to present a case the main interest of which hinges on its successful therapeutics, although it is an interesting case even from a diagnostic standpoint.

D. M., female, 27 years; married; one child. Habits perfectly normal. *Family history.* Father and one sister have stomach trouble. Mother suffers with chronic constipation.

Past History. At the age of one year she developed suppuration of a finger and it took her nine months to recover from it. As a child she always suffered with cramps. At the age of 11 she developed a very bad form of vomiting and she could not retain anything on her stomach. It took her a year to recover from it. In adolescence she was in good health, but she would spoil her stomach at frequent intervals. She would also belch a good deal most of the time and suffered with headaches.

Present History. For the past four and one-half years patient has been very much constipated. For the past three and one-half years she has had constant trouble with her bowels. They would not move, unless she would take a physic and even with physics they would hardly move. She had to increase the doses of the various physics, which would soon lose their effect entirely and would have to change off for another one. Lately she has had agonizing pains in her abdomen and rectum when her bowels would move, so that bad as she felt when her bowels did not move, she would feel worse when her bowels did move. She would go on for two weeks without moving her bowels. Ingestion of food causes a great deal of distress and a variety of dyspeptic symptoms. No pulmonary, cardiac or renal symptoms.

Physical Examination. This showed the patient to be fairly well nourished, but rather pale with an expression of suffering and anxiety. Arteries, pulse, heart, lungs, liver, spleen, urine negative. Pelvis negative, except for a retroverted uterus which was free and movable. Stomach normal in regard to size, position, secretion and motility. Rectum rather tender. There was one marked physical sign, namely, the colon was extremely tender to the touch all along its course from the beginning to the end. No part of it could be touched without inflicting pain. It was thus the most easily traced colon that I have ever seen. In fact the colon was almost visible, for it was spasmodically contracted over its contents and it thus slightly protruded through the abdominal wall in a sausage shaped manner. The diagnosis was therefore plain enough, namely, an inflamed, eroded, probably in spots ulcerated, colon, or a colitis caused by a constipation of long standing. This is a very common disease picture and sequel of chronic constipation. In any case of chronic constipation the colon at first readily adapts itself to the residual feces. The colon readily stretches and the patient, except for a slightly bad taste in his mouth, some headache and his consciousness that he has not moved his bowels, experiences no ill effects. As time goes on however the clinical picture changes. As a result of the constant pressure on the mucous membrane of the colon by the feces which from long standing loses its water, gets dried out and assumes a shape of the hard scybalae, pathological changes take place within the bowel. The bowel becomes inflamed, eroded and often ulcerated, the well known stercoral ulcers as a result of decubitus, form. The peritoneum becomes involved and adhesions form. The large numbers of chemical irritants formed by the decomposition brought about by the numerous microorganisms and especially by the numerous drugs introduced as physics, play an important role in the causation of the pathological changes. A bowel of this type behaves differently altogether from the ordinary constipated bowel. Here the presence of even a small quantity of feces within the bowel causes considerable suffering. These patients must

move their bowels every day or even oftener, else there is considerable suffering.

Treatment. This consisted in putting the patient temporarily to bed. This was not carried out faithfully on account of the care that the patient had to take of her baby. The baby was on mixed feeding. On account of the wretched condition of the mother it was considered too much of a strain on her to nurse a baby and in spite of the warm weather the baby was taken away from the breast. The patient was put temporarily on fluid diet, milk, zoolak, buttermilk, fermilak, clear chicken broth and water. Hot compresses were to be applied to the abdomen. All physics were to be stopped once for all. The patient received a pill of Extr. of Belladonna and Extract of Opium aa. gr. ¼ three times a day. To move the bowels the patient was advised to take one tumblerful of cotton seed oil, make it lukewarm, put in an agateware irrigator and have it injected into the rectum in the evening. The patient was to lie flat during the injection for at least 25 minutes and the injection was to be retained over night. On the next morning should there not follow a movement, a water injection of five glasses of lukewarm water with the patient again in the recumbent position, the irrigator not to hang higher than 3 feet above the level of the patient, the enema to be retained for from ten to fifteen minutes. The improvement at first was slow. As the bowels started gradually to move better the water injections were gradually withdrawn and the bowel movements depended more and more on the oil. A habit was gradually cultivated in the patient to move the bowels daily at the same time, and the oil was being withdrawn. Six weeks after the commencement of the treatment the bowels started to move spontaneously, but the injections of the oil were still employed twice a week. An increase in the diet took place two weeks from the beginning of the treatment when some light cereals and other foods that leave very little of a residue were added. Meats and fruits and vegetables were the last foodstuffs added. It would have been very imprudent to give vegetables and other foods that leave an abundant residue to a bowel that was diseased and spastically contracted as this one was. The belladonna and opium were kept up for two months, when on account of fear of contracting a habit, the opium was dropped and the belladonna kept up for another month, when it was discontinued.

Each and every step of this treatment was of vital importance to the successful issue of the case. The stay in bed and milk diet alone would have never done the work. The patient was kept in bed and on a milk diet for six weeks in a hospital before without any result whatsoever. These procedures including the injections would have been of no avail. For the oil and water would have never reached beyond the ampulla of the rectum, since the bowel was so spasmodically contracted that it held on to the column of feces with a vise-like grip. Here came in the salutary effect of the belladonna and opium which caused the bowel to relax and loosen its hold on its contents. The hot compresses were an adjunct to attain the same object. The patient gained flesh and strength, eats anything she pleases now without any discomfort whatsoever and moves her bowels regularly without physics or any other artificial aids. The tenderness of the colon persisted for several months. On December 8th, 1912, the tenderness disappeared, the patient having come first under observation on August 5th, 1912.

A few words on the diagnosis will not be amiss. The patient is a resident of another city and, strange enough, her malady was diagnosed by the physicians who treated her there on the strength of alleged radiographic examinations, as an organic stricture of her bowels and the patient was sent to this city to a prominent surgeon for an operation. She came however to me for an opinion. I have pooh-poohed the idea of there being any obstruction and did not deem it even advisable to take an X-ray picture. It was evident that a colon so tender to the touch could never mean an obstruction. An obstruction could give one point of tenderness and not a tenderness all along the course of the colon. Moreover

were there an obstruction there would have most likely been peristaltic movements, and also some parts of the colon above the seat of the stricture would have been dilated, full of gurgling and splashing. None of these phenomena were present here. Instead the bowel was uniformly and spastically contracted all along its course. The diagnosis was therefore colitis and not obstruction and the subsequent course of the disease proved beyond doubt the correctness of the assumption.

71 East 96th Street.

CORRESPONDENCE.

TRAVEL STUDY TOUR FOR MEDICAL MEN.

To the Editor of American Medicine:

The visit by a party of German physicians to the recent International Congress on Hygiene and Demography has proven that a well managed Travel Study party of physicians can make a trip through a foreign country in a far more pleasant and profitable manner, and at less expense, than can be done by travelling alone. Clinics can be arranged in advance, lectures prepared and visits made to the best hospitals and health resorts, with the assurance of a hearty welcome from the leading medical men of the localities visited. For those unable to speak the languages of the countries on the Continent, this disadvantage is reduced to a minimum and the benefits of the trip correspondingly increased by travelling with such a party.

The coming International Medical Congress, London, Aug. 6-12, 1913, gives a splendid opportunity for organizing an American Tour of this sort and plans are now ready for a Physicians' Travel Study Tour, leaving New York, July 3rd, for the most important capitals and health resorts on the European Continent: Paris, Munich, Carlsbad-Marienbad, Dresden, Berlin, Nauheim, Wiesbaden, Cologne, Brussels, the Hague, Amsterdam, etc., ending with the week of the Congress in London.

The plan of this tour has been seen and endorsed by Drs. A. Jacobi, T. C. Janeway, Ch. G. Kerley, O. G. T. Kiliani, L. R. Williams, Wisner R. Townsend and others. Physicians interested in such a trip should write for further and more detailed information to

RICHARD KOVACS, M. D.,
236 East 69th Street, N. Y. City.

THE ANNOTATOR.

Presenility, a Problem in Preventive Medicine.[1]— An editorial speaks of the praiseworthiness of the world-wide investigations relating to the prolongation of life and the prevention or amelioration of the infirmities of age. Old age is not only a medical but an economic problem, for it imposes an additional burden upon the community. But while the dependence of the aged is natural and to be expected there is also a tendency in our strenuous civilization to premature senility.

It occurs in those who are still young in years but are physically incapacitated; the race has been too much for them.

How frequently employers refuse work to those who have passed middle age, which necessarily compels the employees to crowd all the work they can into the active years. How frequently employers themselves push their energies to the utmost in order that they may give up work as early in life as possible.

But to stop bodily activity often means the simultaneous stoppage of mental activity, and death frequently presses closely upon the heels of those who retire from active work.

In presenility the mind may not be greatly impaired, but the skin is atrophic and flabby, the arteries are more or less hardened, the pupils react sluggishly, and parenchymatous tissues are exchanged for fibrous.

The capillaries being thrown out of the circulation there is necessarily an increase in the blood pressure.

[1] *New York Medical Journal*, January 4, 1913.

The prevention or the deferring of this condition lies in the abandonment of the strenuous life and the substitution for it of the simple life.

There should be regular periods of vacation and periodic relaxation, giving the metabolic processes a chance to pull themselves together. This will result in the resorption of the young connective tissue elements thrown out in reparative efforts but not needed, and before they have become so firmly organized that this is impossible.

The vacation system is really the necessary complement of the strenuous life, the latter compelling its adoption like the occasional laying-up of weather-beaten craft.

This is certainly very fine in theory, but who is going to provide the wherewithal for the vacations when no provision, in anticipation, has been possible? All the world is thinking about this, and one country after another is developing plans whereby the outlook for the sick and the infirm will not be so desolate as it has been in the past.

Surgical Sociology.[1]— I. S. Wile notes that the United States Interstate Commerce Commission in its recent report urges the necessity of safety as the paramount requirement in railroad travel.

The more or less imaginary importance of a few minutes in commercial undertakings has given the matter of speedy traveling an importance which is disproportionate to the questions relating to the physical well-being of travelers.

The appalling statement is made that in the years 1911-12 the casualties on steam railroads in this country numbered 180,123, of which 10,585 resulted fatally.

These numbers exceeded those of the previous year for similar disasters and demand very imperiously, that speed, and comfort, too, should yield to safety in traveling.

Of the killed 318 were passengers, 3,635 were employees and 6,632 were trespassers, this last being a very striking and suggestive fact.

These figures mean that hospitals and medical attendants have found a large share of their work in such casualties and that the courts have been kept busy with damage suits.

It is stated that 63 per cent of these casualties resulted from errors on the part of employees, which after all, is but cold comfort.

The urgent lesson is that a safe system of transportation is demanded which will deprive the railroads of their maiming and destroying power.

It is quite apart from the question to point to the fact that the injuries and fatalities to passengers were relatively few, and that they were excessive to those who were stealing their ride.

While this method of traveling is not to be recommended and those who choose to adopt it take their lives in their hands, even this should be accounted a poor excuse for such a slaughter.

Besides what excuse can be offered for the fatalities among employees, which were ten times as many as among passengers? Here is a fruitful field for the probe of a Congressional investigating committee.

[1] *American Journal of Surgery*, January, 1913.

Instruction in Child Hygiene.[1]—Mary S. Macy narrates the story of the work done in this direction in New York during the past few years, the following being a summary:

1. Doctors and nurses in the division of child hygiene of the Board of Health have given lectures since 1908 in schools, vacation, playgrounds, offices of philanthropic organizations, and milk stations on the care of infants and child hygiene. This division has also sent out suitable literature.

2. The Association for Improving the Condition of the Poor has given lectures in public schools, and since 1910 it has employed dieticians to instruct mothers on the recreation piers in the art of cooking and serving proper food.

3. The Public Education Association in cooperation with the Society of Sanitary and Moral Prophylaxis has taught sex hygiene to the mothers' clubs of the public schools.

4. The Public Health Education Committee of the American Medical Associa-

[1] *New York Medical Journal*, January 11, 1913.

tion has reached large numbers of mothers and fathers through women's clubs, parents' associations, church organizations, settlements, etc.

Courses of lectures, some of them on child hygiene, have been given every year since 1909 by physicians cooperating with the county medical societies of New York and Kings counties.

5. The Peoples' University Extension Society also provides lectures to settlements, institutions, schools, clubs, churches, libraries, etc.

Child hygiene is a topic for discussion in the two last mentioned societies, and lectures are given both in English and other languages.

It is a most interesting fact that so many agencies are at work in the city of New York in this most important field. But certainly the field is limitless, and it would seem as if only the surface had been scratched thus far.

Health Maxims for School Children.[1]—The editor thinks school teachers should teach their pupils the following rules:

1. That diseases are usually preventable. They are usually brought upon us by our own irrational living.

2. They are usually curable if detected in time.

3. Dirt should be avoided because it harbors germs.

4. Flies are scavengers, but the good they do is far overbalanced by the diseases they carry.

From the manure heap, the privy, the festering sore, the sputum, they go directly to the butter, the molasses, the sugar, the cream and milk and plunge in their feet, which are loaded with bacilli.

5. Mosquitoes are the intermediary for the propagation of malarial germs, and also the intermediary for the development of the germ of yellow fever. They can only reproduce in swamps, lagoons, water barrels, tin cans, or holes filled with rain water.

They can be exterminated by removing the water, or by covering it with kerosene oil, which prevents the larvae from breathing.

A properly used net can protect one from the attacks of these pests.

6. Rats, in addition to other objectionable qualities, are agents for the dissemination of bubonic plague and other diseases.

[1] *Medical Times*, January, 1913.

Alcoholism and the Birth Rate.[1]—An editorial speaks of alcoholism as the greatest single cause of insanity.

It is also the cause of monstrosities and of predisposition to disease.

Stockard shows that by alcoholizing pregnant female animals they can be rendered incapable of producing normal offspring.

Most of the studies on the relation of alcohol to disease have been retro-active, little having been done in studying the effect of alcohol upon parents measured by the health of the resultant children. Stockard's investigations were made upon fifty-five matings of guinea pigs, which were made to inhale the vapor of alcohol.

Only 42 of the pregnancies reached term, and only 7 of the young survived, 5 of them being very small.

To find the effect of alcohol upon spermatozoa 24 alcoholic males were mated with normal females. The result was 14 abortions, 5 still-born litters and 5 living litters containing twelve young in all. Of this number 7 died soon after birth, 4 of the survivors being in one litter.

Then 4 normal males were mated with 4 alcoholic females, 3 of them had litters of one each, one had 3 offspring, all of which died at birth, and the fourth did not conceive.

Next, 14 alcoholic males were mated with alcoholic females.

In 10 there was no offspring or early abortions. In 3 there were 6 offspring which died in convulsions on the sixth day.

These experiments show the potent influence of alcohol on parental germ cells and on the developing offspring.

It is noteworthy that all the young died in convulsions. The deduction from this is clear enough, especially when it is com-

[1] *Medical Review of Reviews*, January, 1913.

pared with the observed fact that chronic alcoholism by its direct effect upon the reproductive apparatus restricts the birth of normal offspring.

Alcoholic families are thus deprived of the means of self-propagation.

After all it would be a mercy if the consequences of alcoholism were even more prohibitive, as to reproduction, than they are.

We know well enough that it is not the same with all alcoholic human beings as it is with guinea pigs, if it were, the amount of disease and misery in the world, from this source, would be far less than it really is.

The Language of the Child.[1]—W. D. Boggs observes that children with reference to disease are like a volcano, which may, at any time, break forth with resulting damage, which may be serious.

The safest rule in caring for sick children is never to give them up as long as they breathe. Infants require particular care and demand a special method of examination. These requirements may be summarized in *protection* and *proper feeding*.

An infant must be protected from shock, arising from various sources, from chilling, from cutaneous irritation, from poisons, from contaminated air and from irregularities of all kinds.

Overfeeding must be guarded against; it may result from an excessive quantity of liquid or from an excess of one or more of the proximate principles of milk.

The same rule will apply in regard to the use of drugs for infants.

The peculiarities of children may be considered under seven heads:

1. You are dealing, in children's diseases, with diseases of the organs by which children live.

2. In old age you are considering atrophic conditions and malignancy, while in young and middle life, prominence is assumed by diseases of occupation and habit, and by the disordered condition of the reproductive organs.

3. The intestinal canal has a predominating influence upon the general condition.

4. A deranged condition of the intestines causes changes above and below the seat of the primary lesion.

5. Intestinal irritation often produces high temperature, fretfulness, convulsions, delirium, and collapse.

6. Intestinal disorder often results in cutaneous eruptions.

7. It also has a powerful influence on the cardiac and vaso-motor systems.

In examining a child you should first aim to get his confidence, then a history of his illness from the mother, together with a history of the mother's previous condition.

In inspecting a baby note the different factors in his language, the condition of his skin, nose, mouth, and eyes, the character of his stools, and the weight and length of his body. His respiration is pathologically significant when it is jerky, or Cheyne-Stokes, when there is an expiratory moan, when it is noisy or croaking, or when its rhythm is disturbed. His cry may be fretful, violent, and continuous, screaming, croupy, or aphonic, each variety being indicative of a particular condition. The pulse of a child is erratic and irregular on the slightest provocation, especially when there is gastro-intestinal disturbance.

The gross anatomical characteristics of a baby, as compared with an adult, are included in the head, chest, and abdomen.

The examination of the urine in young children is a matter of great importance and is too often neglected.

It will frequently reveal important conditions, which would otherwise be overlooked.

[1] *St. Louis Medical Review*, November, 1912.

Mens Sana in Corpore Sano.— An editorial makes the broad assertion that the vitality of the race and nation depends largely upon a healthy condition of the teeth and the oral cavity.

The local effects of neglected oral hygiene are least in importance, though they often signify severe local disease.

[1] *St. Louis Medical Review*, November.

But in addition they may mean tonsilitis, pharyngitis, otitis, and glandular enlargements.

They may also be the cause of gastric catarrh and atrophy, anemia and intestinal autotoxemia.

Simple brushing of the teeth is insufficient to maintain the necessary degree of oral cleanliness.

Oral disinfection is desirable, especially, prior to the use of a general anesthetic. The following formula for an oral astringent and antiseptic is recommended by Talbot as a suitable application for the gums and buccal surfaces of the mouths of children. It should be applied with a swab at least once a month, and it may be used every few days if there is chronic interstitial or suppurative gingivitis. It is considered an ideal application prior to any operation within the mouth. Decay of the teeth will frequently be prevented by its use.

℞	Zinci Iodidi	ʒss
	Aquae	ʒiiss
	Iodi	ʒiv
	Glycerini	ʒii

A septic condition of the teeth is so nearly universal in the middle and lower classes that we have overlooked the importance of oral sepsis in our scheme of etiology. Every doctor should insist upon the treatment of carious teeth as an indispensable feature in the treatment of disease in general.

Vital Statistics.[1]—An editorial notes the neglect of this important subject in the United States, as one of the curious phenomena of our free and easy ways of government. It is thought by many that government inquiries as to sickness and death are intrusive, and even legislators have slight idea of the importance of exact knowledge in regard to existing diseases.

In many parts of the country, where life is exposed to such risks that insurance companies decline all applications it is said we can take no steps to prolong life and preserve health because we do not know what is injuring or killing the people.

Death registration in Europe is universal as a guard against murder, and birth registration is insisted upon by parents as a precaution in proving property inheritance at a subsequent period.

Physicians have a duty to perform in such matters especially in localities where the laws are lax or defective.

The bill prepared by the A. M. A. for a uniform system of registration in all the states has received the approval of sanitary and legal associations, but it is not likely to become enacted into law until public opinion demands it.

This opinion should be created by the medical profession through the lay press which is the only way of getting at the people.

The sooner this is done the better.

One need only study the census to realize the truth of these statements.

Vital statistics are entirely ignored in not a small number of the states.

But it is not unlikely that the next census will see a great improvement in this respect, and that a system including all the states will be evolved which will compare favorably with the system prevailing in all the more important countries of Europe.

[1] *New York State Journal of Medicine*, September.

ETIOLOGY AND DIAGNOSIS.

Grocco's Sign in Pleuritic Effusion.[1]—This sign, which, as Brown says, is well known to consist of a triangular area of dullness, paravertebral in position, situated on the side of the chest opposite the effusion, proved itself, in the author's experience, practically constant in cases with free fluid in the pleural cavity or in which an encapsulated effusion impinges on the spine.

With the patient lying on the affected side the triangle either greatly diminishes or disappears (except in those rare instances where the pleura is enormously distended), to reappear when the patient reclines on the opposite side or assumes the sitting or standing position.

The paravertebral dull area does not form a perfect triangle; the hypotenuse is usually a curved line, particularly at the upper portion. Its size in general varies with the amount of fluid in the pleural cavity, but right-sided effusions are usually accompanied by a somewhat larger triangle than those on the left.

[1] Dr. M. A. Brown, *Lancet-Clinic*, June 15, 1912.

The sign is of particular diagnostic aid when the amount of fluid present is small. It must not, however, be regarded as pathognomonic, as evidence is accumulating to the effect that the triangle may be present in a number of subphrenic conditions associated with the massing of fluid.

Diagnosis of Organic Heart Lesions.[1]—Bateson gives the following: 1. "In health, the cardiac dullness on percussion, immediately below the nipple, two inches across, and the extent of dullness beyond this measurement commonly indicates either the increased size of the organ or undue distention of the pericardium.

2. "In health, the apex of the heart may be felt and seen to strike the chest between the fifth and sixth ribs, a little below and a little to the inside of the left nipple. Any variations that may exist in the position of the apex are indications of disease, either of the heart itself or of the parts around it.

3. "A friction murmur synchronous with the heart's movements indicates pericardial or expericardial exudation.

4. "A bellows murmur with the first sound, heard loudest over the apex, indicates mitral insufficiency.

5. "A bellows murmur with the second sound, heard loudest at the base, indicates aortic insufficiency.

6. "A bellows murmur with the second sound, heard at the apex is rare. It indicates, first, aortic disease, the murmur being propagated downward to the apex; or, second, roughened auricular surface of the mitral valves; or, third, mitral obstruction (pre-systolic murmur at apex).

7. "A murmur with the first sound loudest at the base, and propagated in the direction of the large arteries, is more common. It indicates, first, an altered condition of the blood, as in anemia; or, second, dilatation or disease of the aorta itself; or, third, stricture of the aortic orifice, or disease of the aortic valve.

8. "Hypertrophy of the heart may exist independent of any valvular lesion, but this is rare.

9. "The pulse, as a general rule, is soft and irregular in mitral disease, but hard, jerking or regular in aortic disease.

10. "Cerebral symptoms are more marked in aortic disease; pulmonary symptoms in mitral disease."

Von Pirquet Reaction.[2]—Michajlovskaja employed the following modification of the von Pirquet tuberculin test: The outer surface of the thigh was cleaned with ether and various dilutions of old tuberculin were deposited downward by means of a capillary pipette: 1. A drop of a solution of one part of five per cent. carbolic acid glycerin and two parts of normal saline, as control; 2, one drop of one per cent. solution of tuberculin; 3, five per cent.; 4, ten per cent.; 5, fifteen per cent.; 6, twenty per cent.; 7, twenty-five per cent.; 8, undiluted tuberculin. The skin over the deposits was slightly scarified, and in one to three minutes the excess was wiped off from above downward. The results in 164 cases showed that the majority of tuberculous patients gave the reaction with the higher dilutions (one to ten), while the nontuberculous as a rule failed to react. With the pure tuberculin fifty-two per cent. of nontuberculous individuals reacted.

Symptoms of Bismuth Poisoning.[1]—From the cases reported, Warfield says, we can deduce a rather typical picture which differs from the poisoning of lead and of mercury.

There are three stages: (1) Benign, where the violet-black line is the only manifestation; (2) moderately severe, where there is stomatitis, more or less acute, to which succeeds a chronic stomatitis characterized by discoloration of the gum margins and tattooing of the mucosa which extends to the buccal cavity; (3) a severe form characterized by a longer duration of the stomatitis, the margins of the gums and tattoo-like plaques ulcerate, secondary infections supervene, and general symptoms as fever, hiccough, vomiting, diarrhea, and albuminuria occur.

Prodromal symptoms are slight or, if present, there is only malaise, slight salivation or tenderness about the mouth. There soon follows the line on the gums or tattoo plaques and ulcerations on the buccal mucosa. The bismuth line occupies a part or all of one or both jaws. It resembles the lead line but differs from it because of its really violet tint. In benign cases the gum margin is not swollen. In severe cases there may be swelling, ulceration, and loosening of the teeth. Cessation of the bismuth treatment brings about improvement but the gums still retain the discoloration for some time.

The line on the gums is usually the first symptom of the poisoning, but occasionally there are plaques on the buccal mucosa like tattoo marks. The bismuth plaques may be found anywhere in the mouth but show preference for sites where the teeth and gums come in contact and the first plaque is often at or near the opening of the duct of the parotid gland. The ulceration is more apt to occur at this situation. The sides of the tongue are also frequent sites of ulceration.

The color is the same in all, a violet black. The lesions rarely appear insidiously, but are usually preceded by salivation and erythematou stomatitis. At times the lesions come on rapidly with edema.

The spots may be simply small areas of bluish violet-black color, in severer cases there is some swelling and a diphtheritic white membrane in the centre. This is characteris-

[1] J. C. Bateson, M. D., *Med. Council*, Nov. 1912.
[2] A. O. Michajlovskaja, M. D., *Roussky Viatch*, Aug. 18, 1912.

[1] L. M. Warfield, M. D., Milwaukee, Wis., *Am. Jour. Med. Sciences*, Nov., 1912.

tic of bismuth. In very severe cases gangrene occurs with resulting loss of substance.

The breath is usually foul, depending upon the state of the lesion.

The spots appear simultaneously or in crops. They cause more or less functional disturbance and thus tend to weaken the patient. Mastication may become impossible. The swollen and painful tongue may with difficulty be protruded. Ulcerations on the soft palate and tonsils may cause hoarseness. Salivation is marked and when healing of ulcers begins the saliva may be so tenacious as to interfere with swallowing. The patient in these severe types naturally emaciates, and there is often fever due to secondary infections. There also may be dysphagia, vomiting, and diarrhea. The urine may even be blackish and frequently contains bismuth. Occasionally albumin and casts are present. These symptoms are produced by a pure bismuth salt. They are not the result of impurities, such as lead, arsenic, or antimony.

Diagnosis of Nephritis.[1]—Engelbach in concluding his paper draws the following deductions:

1. Urine analysis alone is no criterion for the lesion or function of the kidney.
2. In many cases of nephritis having marked urinary findings the function of the kidney is not greatly diminished.
3. In probably 50 per cent. of the cases of secondary contracted or interstitial kidneys in which the urine may be practically normal, there is a marked decrease of renal insufficiency.
4. A diagnosis of nephritis or exclusion of such a diagnosis should never be made on the urinary findings alone.
5. Secondary changes in other organs due to nephritis are frequently diagnosed and treated as the primary lesion.
6. Complete general and physical examination, functional tests of the kidney, the course and the reaction to treatment should all be given consideration in the diagnosis of this disease.

TREATMENT.

Strangulated Hernia and Atropine.—Although many surgeons prefer to operate immediately in every case of strangulated hernia, reduction by taxis, especially in general practice, is always attempted, and frequently with success. There is not one practitioner who has not from time to time experienced the satisfaction of hearing and feeling the gurgling of the intestine as it slips into the abdomen. However, this happy result does not always obtain. In spite of repeated and patient efforts, the constriction cannot be overcome, and an operation seems inevitable. If the patient is within reach of immediate surgical interference, it makes little matter—relief is at hand. But it sometimes happens that there is some forced delay, and meanwhile the life of the patient is in jeopardy. For such cases a chance is afforded by placing a compress of ether on the tumour, or by injecting morphia or atropine, which is particularly successful. From 1 (children) to 5 milligrammes (adults) of atropine are injected under the skin of the pubis, and in a few hours the hernia is reduced spontaneously.

Treatment of Cough in Pulmonary Tuberculosis.[1]—In a lecture at the Hôpital Beaujon, Professor Albert Robin pointed out that the cough in pulmonary tuberculosis is often useless, and ought to be treated. It may be laryngeal, tracheal, pulmonary, gastric, mediastinal, or pleural.

The *nervous cough* is very common. It occurs as the result of a tickling sensation in the larynx, and does not depend upon any organic cause. It may be treated by suggestion, for example, in the course of sanatorium treatment. The patient educates himself by his own will. If this treatment is not enough, recourse must be had to the following: Swabbing the throat with a 30 per cent. solution of potassium bromide, or taking 1 g. (gr. xv) of that salt in water.

The *pharyngeal cough* should be treated in the following way (the patient uses this gargle warm):—

℞ B-Naphthol .....gr. iij.
Sodii Perboratis .....ʒss.
Aquæ Menthæ Piperitæ .....ʒvij.
Aquæ.....ad. ʒxxxv.
Misce. Fiat ga-garisma.

If any inflammatory condition is present, the pharynx should be swabbed with the following:—

℞ Cocainæ .....gr. ij.
Resorcini .....gr. xv.
Glycerini .....ʒj.
Misce. Fiat collutorium.

In the case of pharyngeal irritation, the following gargle should be used:—

℞ Sodii Salicylatis .....ʒvj.
Phenazoni .....ʒj.
Aquæ Laurocerasi,
Aquæ Aurantii Florum..ana ʒss.
Glycerini .....ʒiiss.
Aquam Destillatam .....ad ʒxxxv.
Misce. Fiat ga-garisma.

The *laryngeal cough* calls for the attention of the specialist. In the meantime, applications may be made of the following:—Orthoform powder, a solution of balsam of Peru, gomenol-water as a spray, or a solution of cocoa leaves with carbonate of potash.

---

[1] Wm. Engelbach, M. D., *Jour. of Missouri State Med. Assn.*, Nov., 1912.

[1] *Journal des Practiciens*, Nov. 1912.

The following draught may be ordered:—

℞ Tincturæ Bryoniæ .....Mx.
Tincturæ Aconiti .....Mxx.
Tincturæ Belladonnæ .....Mx.
Syrupi Opii .....ʒi.
Aquæ .....ʒiv.
Misce. Fiat linctus.
"One teaspoonful to be taken every two hours."

The *tracheal cough* requires expectorants, and at the same time the tenacious sputum must be rendered more liquid. A useful mixture is one composed of infusion of senega, and of ground-ivy with Canada balsam, sweetened. Or,

℞ Terpini Hydratis,
Pulveris Ipecacuanhæ Comp., ana gr. ij.
Misce. Fiat pulvis.
"To be taken in a cachet two or three times a day."

Or,

℞ Antimonii Oxidi .....gr. xv.-xxx.
Tincturæ Aconiti .....Mxx.
Aquæ Laurocerasi .....ʒiij.
Syrupi Opii .....ʒvij.
Syrupi Ipecacuanhæ ....ʒiij.
Aquæ..... .....ʒiv.
Misce. Fiat mistura.
"Four, five, or six tablespoonfuls to be taken in the twenty-four hours."

For the *gastric cough*, the following should be used:—

Ten minutes before each meal, 2 drops of Sydenham's laudanum (Tinct. Opii Crocata), or ⅙th of a grain of codeine, or, during the meal, make a few inhalations of oxygen.

In the case of the *bronchitic cough*, or of the cough due to compression, these pills should be ordered:—

℞ Extracti Opii .....gr. ⅙.
Extracti Stramonii .....gr. 1/12.
Misce. Fiat pilula.
"Three of these pills to be taken at bedtime, two to be taken during the night, and from three to five during the day."

Or, dionine may be given in pills, gr. ⅙ to ⅔, in the twenty-four hours.

For the *cough of pleurisy*, a counter-irritant is the most effective; iodine, the point of a cautery, or a blister.

Chronic Gastritis.[1]—The first essential in considering treatment, says Barclay, naturally is to determine the etiological factor or factors and as far as possible to correct them. To this end the attention must be directed to a few common points of general hygiene.

[1]Harold Barclay, *Med. Times*, Dec. 1912.

I mention them briefly as follows:

1. Prohibition of alcohol.
2. Limitation of tobacco.
3. Appropriate treatment of diseased gums and teeth by a dentist.
4. Exercise regulated to the individual requirements.
5. Sufficient mastication.
6. Regular hours.

No hard and fast rules can be made as regards diet for each case will be influenced by the condition of the gastric secretion and motility. In general it should be said that food should be good, nutritious, as bland and non-irritating as possible and of sufficient variety not to become irksome. Cannon has shown that coarse foodstuffs are notably retarded in their exit from the stomach, and consequently act as irritants. When marked glandular activity exists as in the hyperacid stage, a diet rich in proteids, in spite of its high combining power with hydrochloric acid tends to further increase this activity.

In Barclay's experience the best results were obtained by restricting or cutting out the coarse fibred meats, as beef, and prohibiting the use of such scratchy articles as cabbage, raw celery, graham bread, raw fruits, etc. Where atony is present water should not be allowed with meals or its amount limited as the extra bulk acts as a mechanical hindrance to the peristaltic action of the stomach.

In the mechanical treatment lavage is a most useful adjunct. It not only removes the mucus, but in the expansion and contraction of the stomach wall stimulates the unstripped muscle fibres. In the milder degree of gastritis where mucus is not a continuous secretion, washing after a night's fast fails to reveal its presence. In these cases if it is practiced say four hours after an ordinary meal it can usually be demonstrated. The author has never seen that medicated lavage possesses any advantage over plain warm water. The presence of mucus is best shown by splashing a hook around in the washings and if it is present it can be drawn up in white glairy strings. Mere inspection as a rule fails to show its presence, as it is of the same color and held in solution by the water.

A vast host of drugs has been advocated, but the majority of them are useless. In the well nourished cases, with normal or higher acidity use the alkaline saline waters, as Carlsbad in the form of imported salts. What their action is authorities seem to differ, but the general consensus of opinion is that they do exert a beneficial influence on the gastric mucosa by stimulating the secretion of bile, the motor function, dissolving mucus and reducing the acidity. In those cases of less robust constitution vichy salts may be substituted in place of Carlsbad, as its prolonged use is less debilitating. Where hyperacidity exists, the use of alkalies is indicated as soda bicarb. or magnesia oxide.

In the subacid cases Kissengen salts have been advocated and as far as my experience goes, they have proven of benefit, but their use has rested largely on an empirical basis. Re-

cently Van Norden and Dapper have endeavored to determine their true physiological value. Their observations were carried out on a large number of gastric conditions, and one very interesting conclusion was that in many cases of gastric disorder, especially chronic gastritis, the use of saline waters leads to an active increase in the hydrochloric acid secretion. Again, that in case of hyperacidity a moderate use of the salines tends to decrease the hydrochloric acid secretion. This certainly sounds paradoxical, but the high standing of these clinicians leaves no room for scepticism. When constipation is present, the temperature of the saline should be reduced, as the cooler the water, the more laxative is the effect; where a tendency to diarrhea is present they should be given as hot as possible, slipping them preferably through a tube.

Those cases where there is no free hydrochloric and a total acidity of 20 or under; hydrochloric by itself or in combination with resorcin, especially where atony is present, is of decided benefit. The Kissengen salts should be given a half hour before meals and the hydrochloric not earlier than half an hour after meals. In those cases where overwork and worry are prominent factors, a trip to some of the European or American spas will often prove of great benefit, not so much on account of the waters, as the regular life, simple diet and the freedom from care.

Treatment of Epistaxis.[1]—Let the patient always sit up before an open window—never lie down—so as to keep the head higher than the trunk. Ice may be used locally and to the back of the neck. The lower extremities should be immersed in hot water up to the knees, or the lower limbs bound with hot cloths, and small doses of digitalis with ergot may be given every three hours. The best method of using powerful astringents is to illuminate the nose by a good light and speculum, and attempt to detect the spot from which the blood flows. Then apply such remedies as adrenalin, turpentine, sulphate of iron, hazeline, and other astringents directly to the bleeding point, a probe being tipped with sponge for the purpose. This is a better practice than blindly swabbing the whole of the nasal cavity and membranes with caustic agents. It is sometimes necessary to plug the nares, which must be plugged posteriorly with a piece of lint, fastened with silk through the nose. The silk may first be passed with a Pelliocq's sound, or, better, a soft gum catheter. These plugs should always be soaked in antiseptic solutions and covered with boracic acid, or they soon become foul. They should always be removed within twenty-four hours. A serious objection to their use is the setting up of acute inflammation of the middle ear, which is very apt to occur if the pernicious practice of plugging the posterior nares with lint soaked in a strong solution of perchloride of iron is followed.

[1]Dr. J. L. Morse, *Am. Jour. Med. Sciences*, Nov., 1912.

Transplantation of Bone in Treatment of Fractures.[1]—Dr. Murphy has demonstrated beyond a doubt that transplantation of bone, if done in a certain class of cases, and under certain conditions, is perfectly feasible; and a most satisfactory method of dealing with ununited fractures, or fractures where there is loss of much bone tissue, and especially in cases where malignancy or traumatism has caused the loss of a considerable section of a long bone.

The following rules must, however, be observed: First, the bone must be taken from the same individual, preferably from the spine of the tibia of the well leg; second, that there must be direct contact of both ends of the graft with the bone, and preferably the graft should be driven snugly into the rimmed out medullary canal at each end. Nails may be driven in to prevent undue shortening and to make the contact more accurate if there has been much loss of bone substance.

The site of reception of the transplant must be free from infection or disease of any kind, and must not have sustained a recent trauma. After placing the transplant, the wound must be closed so as to exclude the air. Reasonable fixation of the limb must be maintained, and the usual treatment for simple fracture be instituted. The size of the transplant should be as large as can be taken conveniently from the tibia, provided the same is not larger than the place to be filled.

In chiseling the slip from the tibia it is his custom to leave the periosteum attached to one side of the transplant, but he is not at all certain that this is necessary. He is certain that he has demonstrated that bone regenerates from bone and not entirely from the periosteum.

He is not yet certain whether the transplant simply acts as a stimulant to the osteogenic process, the Haversian canals with their lacunae, canaliculi, lamellae and Haversian spaces, serving as carriers of the osteoblasts and osteoclasts, the compact tissue eventually being entirely absorbed, its place being taken by new bone; or whether it remains after complete regeneration has taken place simply as a part of the new bon

It will be remembered that both osteoblasts and giant cells are found in great abundance on the walls of the medullary canal, also that the canal does not exist in early fetal life. To what extent it reforms later in these cases is still unknown. This, however, is not a matter of great importance from a clinical standpoint.

[1]C. P. Thomas, M. D., *So. Cal. Practitioner*, Los Angeles, Cal., Nov., 1912.

Mixed Narcosis.[1]—Embley in his useful paper states that the purposes of administering morphine in conjunction with ether or chloroform in general anesthetics are:

(1) To diminish the quantity of chloroform or ether necessary to maintain surgical anesthesia, thereby lessening the liability to overdosage and the severity of after effects.

(2) To cut out as far as possible the liability to reflex syncope and to diminish shock in prolonged operations.

(3) To diminish "psychic shock."

(4) To diminish the secretions of the mouth and airway in ether narcosis.

The addition of atropine to morphine in mixed narcosis was made for the following reasons:

(1) To further diminish the secretions of the mouth and the airway in ether narcosis.

(2) To cut out the cardio-inhibitory function of the vagi, and thus to prevent syncope, especially in chloroform narcosis.

(3) To compensate the defective lung ventilation due to morphine.

The addition of scopolamine to the morphine in mixed narcosis was made for the following reasons:

(1) To further diminish the secretions of the mouth and airway in ether narcosis.

(2) To further diminish the amount of ether or chloroform necessary to maintain surgical anesthesia, by summing its own anesthetic effect with that of ether and morphine or chloroform and morphine.

(3) To compensate the defective lung ventilation, due to morphine. His conclusions, which should be read in connection with the remarks in the "*Univ. Med. Record*," September, 1912, No. 697, and October, p. 335, are that:

(1) The use of morphine, atropine, and scopolamine in mixed narcosis appears to be justified; with the exception of the employment of atropine and scopolamine to compensate the respiratory depression caused by morphine.

(2) Neither atropine nor scopolamine compensates the respiratory depression caused by morphine. In the severe form of depression they are incompetent, whilst in the milder forms the augmentation is of too short duration to be of service in clinical usage.

(3) During employment of the closed method of mixed narcosis, respiratory depression does not occur. When marked depression occurs in the open ether method of mixed narcosis, the closed method should be substituted. Should marked depression be found to continue after the operation and to cause anxiety, CO_2 should be administered, much diluted in the inspired air.

(4) If the dosage be confined to the lowest useful limit—say ⅙ to ⅛ grain of morphine for adults and 1/100 to 1/150 grain of atropine or scopolamine—and the anesthesia by open ether be not carried to too deep a level, marked respiratory depression will rarely occur.

(5) In the small minority of cases in which morphine causes marked respiratory depression, it is due to abnormal innervation of the respiratory mechanism, when even the smallest serviceable quantity of morphine will bring it about.

(6) Omnopon appears to offer a way of obtaining the advantages of morphine in mixed narcosis with a diminished risk of respiratory depression.

(7) In the mixed narcosis of chloroform, respiratory depression is apt to be absolute and persistent in cases of abnormal innervation. Such cases are not necessarily dangerous, providing that artificial respiration be maintained till autonomic breathing returns. The administration of CO_2 during artificial respiration is the best treatment. The CO_2 of course, should be used so that some approximation to 5 per cent. be inspired intermittently.

(8) Clinical experience of omnopon, scopolamine, nitrous oxide and oxygen, with ether, favorably impresses. The after effects are much less and the patient less unhappy on recovery. Much less ether is used than by other methods.

[1] C. P. Embley, M. D., *Australasian Med. Jour.*, Aug. 17, 1912.

Treatment of Erysipelas by Tincture of Iodine.[1]—Binet reports the results of a series of cases of erysipelas treated by swabbing over the affected area with tincture of iodine. He points out that the disease is a dermatitis, and consequently that if the streptococci, which swarm in the compact meshes of the skin, are to be destroyed, it is necessary to use an antiseptic which can be absorbed. Iodine answers this want, but its absorption varies considerably, according to the conditions under which the swabbing is made. Faults of technique are responsible for the most part of the failures of this method. It is absolutely necessary to follow up the application of the antiseptic with a dressing composed of sterile compresses or of simple sheets of wool. The tincture of iodine dries up and forms a pellicle on the surface of the epidermis. It is, therefore, necessary also, when a fresh swabbing is required, to begin by removing this iodic pellicle, and clean the epidermis with either a little absolute alcohol or glycerine. The skin must be quite dry before the iodine is applied.

To avoid excessive concentration, Binet dilutes the tincture of iodine with alcohol, and adds a small quantity of guaiacol.

℞ Guaiacol .....gr. xlv.
Tincture Iodi,
Alcohol Absolut. .....aa ʒi.
Misce.

The guaiacol is absorbent, analgesic, and antithermic. The first swabbing with iodine is made freely over the whole surface of the erysipelatous area, even going beyond its borders to prevent serpiginous invasion of the in-

[1] *Revue Medicale.*

fection, and an impermeable dressing is applied. The next day but one, and each subsequent day, the swabbing is repeated. After the second or third day a very apparent change is produced in the affected area. Instead of edematous tissues, tight and shining, is found, on the contrary, a skin which has passed into a condition of subsidence. The epidermis seems shrivelled and dried up; sometimes it has cracked, laying bare in narrow fissures the underlying dermis. Towards the fifth or sixth day peeling occurs, and then the swabbing must be stopped, otherwise the caustic action of the iodine will produce scars. With the improvement in the local condition, the general condition recovers.

HYGIENE AND DIETETICS.

Eating and Overeating.[1]—The majority of people eat too much. It is safe to say that the average man eats four times the quantity necessary to sustain life, or to keep him in good health. He eats, not because he is hungry, but for fear that he may be hungry before the next meal—even indulging in a hearty meal when in an exhausted condition. At such times the digestive organs are unfit to digest an immoderate quantity of hearty food. Oftentimes gastric irritability, resulting from physical or mental exhaustion, is mistaken for hunger. Genuine hunger is one of the most delightful sensations experienced by man. When a person is very tired, instead of sitting down to a hearty meal, it is better to take a little hot soup or milk, when in the course of ten or fifteen minutes, he may with safety begin to eat slowly, masticating thoroughly, and should stop eating before he experiences a feeling of satiety. Such a course will result in a return of gastric vigor, and if this practice be religiously followed one will rarely suffer from indigestion or "dyspepsia." Our appetites are difficult to master, but when once under perfect control a long stride has been made in the matter of self-discipline.

One should not confine himself to a strictly vegetable diet, neither should eat too much meat. "In older countries, the lower orders, as a rule, have but a low vitality. It may be truer to say that the vital volition is weak. Let the learned settle the definition. The fact is easily accounted for. During generations the majority of European agricultural populations lived upon vegetable foods, like the majority of Eastern Asiastics, and with the same result. Hard labor produces hard muscles, but vegetable food yields a low vital tension, so to say. Soldiers know it well enough. The pale-faced city clerk who eats meat twice a day, will outfight, outlast and outstarve the burly laborer, whose big thews and sinews are mostly compounded of potatoes and water." Man is an omnivorous animal, his teeth show it, and he should recognize this fact and govern himself accordingly. Don't be like the people David referred to, "Their soul abhorreth all manner of meat; and they draw near unto the gates of death." Eat vegetables, eat meat, but eat sparingly, especially as you advance in years. As a man grows older, as Dr. Love tersely put it, "he should eat less, drink less alcoholics, worry less, frivol less, work less, but do better work, and eliminate more waste matter." Moderation, then in meat eating, with moderation in the consumption of vegetables, other things being equal, should make a man "healthy, happy, and wise."

[1] *Dietetic and Hygienic Gazette*, Nov., 1912.

How to Avoid "Taking Cold."—"Everyone catches cold—that means everyone at irregular intervals suffers from a simple cold to a severe pneumonia. A simple cold with acute nasal congestion is an unmitigated nuisance, while a severe pneumonia is one of the tragedies of physical life.

"I believe," says Dr. Richard Ellis (*Medical Record*). "I have found a way by which most "colds" can be conquered if fought at their birth. Some years ago a friend said to me, 'when I feel a strong draught blowing on my bald head I always rub it hard—that brings the blood back, and so I avoid taking cold.' Later on I noticed that sneezing is always followed by congestion of the face, especially in those who sneeze heartily—that is 'Nature's way of bringing the blood back,' said I, remembering my bald-headed friend. Acting on this principle, I have experimented sufficiently to know that 'bringing the blood back' does drive away 'colds,' and that sneezing is Nature's way of restoring (or trying to restore) the normal circulation when a surface anemia has been caused by surface chilling.

Therefore, when the nasal mucous membrane is first congested, and one feels he is 'taking cold,' let him bend the body forward (as in picking up a pin from the floor) and 'strain' gently till the face is red, then (in the erect position) try to breathe through the partially occluded nostrils; repeat this process till the nostrils are freely open. Of course one should exercise and take hot drinks till that chilly feeling disappears, but that does not drive away the nasal congestion which so often introduces a severe cold.

This new method of avoiding 'colds' by bringing on forced nasal hyperemia, and following this by patient nasal respiration till the nostrils are freely open, 'sounds silly,' but after three years of practical experience, I have decided to publish this brief statement."

Birth Rate.—People thought that Germany had but to sit tight and hold on and France, in perhaps a couple of generations, would cease to be a menace. The falling birth rate in France was expected to take care of any danger from her.

But the official statistics of the medical department of the Prussian Ministry of the Interior that have just been made public shed an entirely new and alarming light on the mat-

ter as far as Germany is concerned. So much so that the Government has decreed a thorough investigation into the causes that are responsible for the decline in the birth rate and the methods by which it may be restored to normality.

The figures made public show that while in 1875 the births in the German Empire were 42.6 for every 1,000 of the population, in 1910 they had fallen to barely 31 per 1,000. That the conditions were still worse in 1911 may be inferred from the fact that in that year in the Kingdom of Prussia there were 34,000 less births than in 1910, 65,000 less than in 1909, and 86,000 less than in 1908.

Last year the deaths exceeded the births in France by almost 35,000. The total number of births in 1911 was 263,000 less than the usual number of births; during 1910 and 1911 the birth rate came perilously close to the death rate, and it is said on good authority that the current year shows no improvement, but rather the reverse in the condition. From 1876 to 1885 the births to 1,000 of population were 34.2; from 1886 to 1895, 30.9; from 1906 to 1911, 28.6—a sufficiently depressing showing.

The birth rates for the years 1901 and 1911 respectively for the countries named follow, the figures emphasizing the scope and increase of the evil: Holland, 31.1-30.5; Belgium, 31.7-28.8; Norway, 31.0-29.2; Sweden, 29.7-26.4; Finland, 36.1-31.0; Austria, 38.4-36.5.

It may be said that since 1880 the increase to the thousand of population in all the states east of the Missouri, and especially in Connecticut, Massachusetts, New Hampshire and Maine, has declined steadily.

New York City's Death Rate in 1912.—There were 2,415 less deaths reported in 1912 than during 1911, according to the annual statement relative to the vital statistics of the City of New York issued by Dr. Ernst J. Lederle, Commissioner of Health. The number of deaths reported during 1912 was 73,008, with a death rate of 14.11 per 1,000 of the population. The death rate for 1911 was 15.13; for 1910 it was 15.98, and for 1909 it was 16. The past year's death rate is the lowest the city has ever experienced. Comparison of the past year's mortality from different causes with the decennial averages of the years 1902 to 1911, inclusive, shows a reduced mortality from all causes except cancer and homicide. There was an increase of fifty-seven deaths resulting from homicides. There was a decrease of 174 deaths due to suicide. Deaths reported in tenement houses during the past year numbered 30,579, a decrease of 12,781 deaths being shown in comparison with the decennial average. Infant mortality during the year was the lowest ever recorded in the city, 14,289 deaths being reported, or a rate of 10.05, which is considerably lower than any of the large cities of the world, with the exception of Paris. The number of births during the year was 135,625. While this is an increase of 1,083 in absolute numbers compared with the returns for the year 1911, still the birth rate for the year, 26.22, is the lowest since the year 1906. On the other hand, the number of marriages reported was 52,391, or a rate of 10.13, which is the highest marriage rate in five years.

The Cost of Infectious Diseases.[1]—Professor James W. Glover, of Ann Arbor, delivered at the American Hospital Association an address on this subject. He pointed out that tuberculosis caused in every 1,000 persons the following death rate:

20	1.450	50	2.011
25	1.999	60	2.196
30	2.118	70	2.616
40	2.041		

On the prospective value of a man's earnings from age 20 to age 70 on the basis of $100 a year and 5% on money, with the average incidence of tuberculosis the average man's earnings would be reduced as follows:

20	$47.51	45	$24.21
25	45.81	50	18.72
30	41.21	55	13.20
35	35.70	60	7.51
40	29.72		

This is quite an impairment to the average wealth-earning capacity of each on the basis of $100 a year from the various ages above to 70. For the United States an average of $100 for each person this would mean a total loss of $671,018,025. But as the average earnings are greater than $100, the actual loss is calculated to be $2,013,054,075.

Assuming the population of Canada as one-twelfth of that of the United States, the loss to this country would be about $167,000,000. Professor Glover goes on to show that any country with a death rate from tuberculosis of 140 per 100,000 of the population could profitably spend $10 per head, if thereby the disease could be eradicated.

GENERAL TOPICS.

Relief of Obstinate Hiccough.—After thorough cleansing of the prima via, mechanical pressure on the diaphragm would seem to be a reasonable procedure. With this end in view Kanngiessen (quoted in the *Prescriber*) administered 5 grams of citric acid, and immediately afterwards an equal quantity of sodium bicarbonate. The hiccough ceased at once, and the patient had several hours' sleep before the annoying symptom returned. Joedicke has the patient draw up both legs so as to be fully flexed at the knees and hips, hold-

[1]Editorial, *Canada Lancet*, Jan. 1913.

ing them pressed hard against the abdominal wall, so as to push the viscera as far as possible up against the diaphragm. He has seen this method give immediate relief in every instance of several cases.

Investigation on Value of Radiography in Fractures.—The American Surgical Association has appointed a committee consisting of Drs. William L. Estes, South Bethlehem, Pa.; Thomas W. Huntington, San Francisco, California; John B. Walker, New York City; Edward Martin, Philadelphia, and John B. Roberts, chairman, 313 S. 17th Street, Philadelphia, to report on the Operative and Non-Operative Treatment of Closed and Open Fractures of the Long Bones and the value of radiography in the study of these injuries. Surgeons, who have published papers relating to this subject within the last ten years, will confer a favor by sending two reprints to the chairman of the committee. If no reprints are available, the titles and places of their publication are desired.

SOCIETY PROCEEDINGS.

THE EASTERN MEDICAL SOCIETY OF THE CITY OF NEW YORK.

The regular monthly meeting was held February 14, 1913, with the President, Dr. Joseph Barsky in the chair.

EXECUTIVE SESSION.

The Executive Session was devoted to the transaction of routine business.

SCIENTIFIC SESSION.

A. *Presentation of Cases.*

1. Femoral Thrombosis following Appendectomy.
2. Fracture Internal Condyle of Humerus, due to muscular action.
3. Case of Pneumococcus Sepsis. Dr. Leo B. Meyer.
4. Osteomyelitis of Ribs as a Sequel to Pleuro-pneumonia. Dr. S. Spiegel.
5. Report of three cases of Caesarean Section, Dr. A. M. Hilkowich.

B. *Symposium on Abdominal Pain.*

1. Surgical Aspect, Dr. Robert T. Morris.
2. Surgical Aspect, Dr. A. E. Isaacs.
3. Medical Aspect, Dr. Charles E. Quimby.
4. Neurological Aspect, Dr. Smith Ely Jelliffe.

The discussion of the papers was by Drs. L. J. Ladinski, Morris Manges, Bernard Sachs, Israel Strauss, and I. S. Hirsch.

The papers composing this symposium will appear in their entirety in an early issue of AMERICAN MEDICINE.

After adjournment of the Scientific Session, the members and guests partook of the usual collation.

Society of American Bacteriologists:—The meeting held in New York, December 31st, 1912, and January 1st and 2nd, 1913, was one of the most successful the Society has ever had, both in general interest, as evidenced by the large attendance at each session, and in the importance of the papers presented. The following officers were elected: President, Prof. C. E. A. Winslow, American Museum of Natural History, New York City; Vice-President, Prof. Chas. E. Marshall, Massachusetts Agricultural College, Amherst, Massachusetts; Secretary-Treasurer, Dr. A. Parker Hitchens, Glenolden, Pennsylvania; Council, W. J. MacNeal, L. F. Rettger, D. H. Bergey, H. A. Harding; Delegate to Council of American Association for the Advancement of Science, Prof. S. E. Prescott.

"A Society for the Advancement of Clinical Study has recently been organized in New York City, the purpose of which is to maintain a bureau of information which will furnish to resident and visiting physicians definite information regarding the clinical facilities of the hospitals and laboratories of the greater city. For this purpose a bulletin board has been installed at the Academy of Medicine, 19 West 43rd Street, in charge of a special clerk who will be on duty between the hours of nine and six to answer all telephone inquiries (Telephone 974 Bryant). The bulletin board will consist of two sections, on one of which will be posted month by month, the regular clinics, medical and surgical, and also laboratory demonstrations, all of which are held at stated hours. The second section will include full announcements of daily operations and demonstrations of cases both medical and surgical, which as far as possible will be announced on the day preceding their performance. It is believed that these facilities will afford physicians who are interested in observing particular operations and operators or clinicians, an opportunity to obtain the desired end with the least trouble. It is hoped that by this means the large and unexcelled clinical facilities of New York City will be made more accessible to those who may desire to make use of them."

American Medicine

H. EDWIN LEWIS, M. D., *Managing Editor.*
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.

Copyrighted by the American Medical Publishing Co., 1913.

Complete Series, Vol. XIX, No. 3.
New Series, Vol. VIII, No. 3.

MARCH, 1913.

$1.00 YEARLY in advance.

The Friedmann "Cure" for tuberculosis may prove to have many if not all of the virtues its discoverer claims for it, but one thing is certain, its introduction to the scientific world has given unlimited opportunity for doubt and criticism. It is entirely probable that many of the unfortunate circumstances attached to Dr. Friedmann's visit to America may have been due to conditions that he could not have foreseen or controlled. We have no desire to judge harshly or to extend the slightest discourtesy to this visitor to our shores. On the contrary, we aim to maintain the position every earnest physician should invariably bear to innovations in medicine, a position characterized by interest, an open mind, and a sincere hope that the efficiency of medicine may be advanced, be it ever so little. But so many requests for information concerning Dr. Friedmann and his remedy have been received that we feel it incumbent upon us to discuss the proposition openly and fairly with the object of presenting to the thousands of physicians who read AMERICAN MEDICINE a calm dispassionate view of the situation.

At the outset, let it be said that the one great objectionable feature of Dr. Friedmann's treatment is the secrecy which he has maintained concerning its exact character. In all kindness and sincerity we believe that this is contrary to the true principles of medicine. No physician has a right to employ an uncertain and possibly dangerous remedy in the treatment of disease in human beings until he knows all that anybody knows concerning its composition, character and action. For this reason no physician can endorse or employ Dr. Friedmann's serum as long as he maintains the slightest secrecy in regard to its exact nature and effect. Let it not be understood that we are denying Dr. Friedmann's right as an individual or business man to protect his interests by keeping his remedy secret, if he thus sees fit. But Dr. Friedmann in announcing his treatment did so as a physician—a professional gentleman—and not as a business man. As a physician he very properly assumed certain rights and privileges, and expected the attention, consideration and cooperation of his professional colleagues. As a physician he sought and has a right to demand the unbiased investigation of his discovery. Finally, he sought publication of his original paper announcing his conclusions, in a professional journal circulating more or less exclusively among medical men. All these things indicate that Dr. Friedmann was presenting his work to his colleagues as a physician. This being so, he could not with propriety withhold any information concerning his remedy. The statement that secrecy was maintained to avoid improper use of the remedy

by the unscrupulous and unskillful, does not afford justification for such a course, for the unscrupulous will do much more harm with the spurious substitutes that they always employ when the original remedy is withheld. No, the dangers of non-secrecy are small compared to those of secrecy, and looked at in the most impartial light it would seem that the only interests that could possibly suffer from a full and complete statement of the whole truth in regard to this remedy are those of Dr. Friedmann's exchequer. But since Dr. Friedmann saw fit to announce his discovery to his colleagues and has sought their recognition and support, it is evident that he prized other emoluments than simply monetary. Had he desired financial recompense alone, he should have broken away from the profession entirely, and, addressing himself exclusively to business methods, exploited his remedy along the lines of honest commercialism. The course pursued by Dr. Friedmann to date has been neither strictly professional nor frankly commercial, and as a consequence he has only himself to blame if American physicians appear loath to acclaim him as heartily and enthusiastically as he anticipated.

Several things must be mentioned in considering the whole proposition. When Dr. Friedmann came to America he allowed the newspapers to quote him to the effect that he had had no commercial dealings relative to his remedy, that he was a professional man, and was interested in no other than the great humanitarian side of the question. Hardly ten days after Dr. Friedmann's arrival, there came from St. Louis a gentleman claiming to have a contract with Dr. Friedmann covering the exclusive commercial control of his remedy in the United States should it prove all that was claimed for it! While Dr. Friedmann repudiated this contract, there is every reason for believing that he had had dealings looking toward the marketing of his remedy in this country. There is nothing essentially wrong in this, aside from the very explicit denial that any such thing was contemplated. Again, Dr. Friedmann has been reported as stating that no application for a patent had been made. Less than two weeks ago, however, one of the foremost New York papers stated that six months ago Dr. Friedmann filed his preliminary papers in the U. S. Patent Office to insure control of his preparation. Inasmuch as Dr. Friedmann has not denied this it will have to stand as the truth of the matter. Here again, the only wrong was in the first denial. There are a number of other things that are not in accord with the highest ideals and that tend to raise honest doubt as to Dr. Friedmann's intentions. Take for instance, the precipitate attempt to fit up elaborate offices near to the Waldorf-Astoria without consulting local regulations or laws. There can be no doubt that Dr. Friedmann proposed to engage in private practice in New York City and, as he was quoted as saying, "let those who could, pay an appropriate fee." Fortunately, the Federal Government insisted that Dr. Friedmann first demonstrate the harmlessness as well as efficacy of his treatment, as also did the local Health Board authorities. Instead of treating countless private patients as he very evidently intended, Dr. Friedmann has been forced by circumstances to engage in a demonstration under governmental surveillance. An interesting sidelight was thrown on the situation by the strike of Dr. Friedmann's

assistant who claimed he had accompanied Dr. Friedmann to this country on the promise that he would be given a liberal share of the "large sums" anticipated. When, owing to the action of the authorities, no "large sums" were forthcoming, this assistant promptly announced his hard luck story and prepared to leave Dr. Friedmann's employ. Matters were patched up privately, however, and it is to be assumed that the striking assistant received something more tangible than promises. While there is nothing culpable in Dr. Friedmann's original arrangement with his assistant, it furnishes some enlightenment on the expectations entertained by Dr. Friedmann himself and the motives that prompted his trip to America.

Why did Dr. Friedmann leave Germany is a question that suggests itself to a great many people. Surely there was no lack of clinical material, his colleagues were not unfriendly, and the opportunities for proving the efficacy of his remedy would seem to be much greater in his own country among patients speaking the same language. Germany has never been backward in giving full recognition to her scientific men and the logical course for Dr. Friedmann to have pursued would have been to prove the worth of his remedy in his own community. If it is all that he claims, he did not have to leave his practice in another doctor's care, travel overseas and subject himself to the humiliation and annoyances that he might have expected in an alien land. Summed up, there is every reason for believing that Dr. Friedmann was very badly advised by someone who convinced him that there was unlimited money in the United States, that patients without number would flock to him, that enormous fees could be obtained, and that in a very short time he could accumulate a much larger fortune than was possible in Berlin. How illy informed he had been Dr. Friedmann found out in less than a week. The newspapers, quick to see the news value of Dr. Friedmann's visit featured his affairs and gave very full accounts of everything he did. Naturally this publicity aroused no little antagonism, and for a while there was danger that Dr. Friedmann would be denied the opportunity of demonstrating his treatment in New York. But good judgment finally prevailed and it was felt that Dr. Friedmann should be allowed to establish his bona fides. Common decency required that his claims be investigated without prejudice, and every chance accorded him to prove the specific properties of his remedy. Any other course on the part of New York physicians would have been a grievous error and laid them open to grave criticism. Confronted by the possibility of diminishing the terrors of tuberculosis ever so little, there is but one position that the profession can ever afford to take, a position characterized by a desire for the truth, a willingness to learn, and a complete freedom from narrow or petty prejudice. In connection, therefore, with the situation presented by Dr. Friedmann's visit to New York, i. e., in spite of the unpleasant features that have arisen and the grounds for criticism that unquestionably exist—it is to be hoped that every opportunity will be given him to prove his contentions beyond all possible doubt. If in due course it transpires that Dr. Friedmann has discovered the means of conquering tuberculosis, no class will be quicker to forget his mistakes and give him the honor and credit that he will deserve, than the medical profession. On the other

hand, if his treatment fails and his claims do not receive substantiation, the physicians of America will never regret having given him a fair hearing.

The Friedmann remedy at the present writing is shrouded in more or less secrecy and until its discoverer sees fit to give full and complete information concerning its character and production to his scientific brethren, professional opinion must obviously be held in abeyance. Dr. Friedmann evidently has taken as his working hypothesis Koch's expressed conviction that the cure of tuberculosis depended on finding a tubercle bacillus avirulent or non-virulent to the human family. Dr. Friedmann claims that he has found such a tubercle bacillus in the turtle and has rendered it entirely free from all pathogenic virulence by special and repeated cultivations. Those who accept Dr. Friedmann's claims see a close analogy between his work and what has been done to conquer smallpox. While there may be many points of similarity there is one fact that we should not overlook, and that is that tuberculosis—the pulmonary form particularly—unless taken early is rarely a pure infection. As a matter of fact, when pulmonary tuberculosis reaches a stage that admits of its easy detection clinically, several other organisms are usually as active as the tubercle bacillus, and often a great deal more so. Not a few of our leading students of tuberculosis are convinced that the rapidly progressive features of practically every case of pulmonary tuberculosis are due to the secondary or mixed infections that are found so uniformly in the late or advanced stages. One thing is sure, the great destruction of tissue that is so frequently encountered in tuberculosis of the lung is always attributable to other organisms than the tubercle bacillus. With these facts so well established it is hardly to be expected that Dr. Friedmann's cultures or vaccine of turtle tubercle bacilli can accomplish anything in these well advanced cases of pulmonary tuberculosis. Indeed, the data at hand show that Dr. Friedmann has obtained best results in cases of so called surgical tuberculosis, or tuberculosis of the knee, the hip, the shoulder, and so on. This is to be expected, for these lesions are not only much less subject to complication by other organisms, but they are more circumscribed, pursue a more chronic course, and give rise to much less systemic disturbance. Pulmonary tuberculosis, on the other hand, is a malady that is associated with such a variety of general symptoms that not infrequently the constitutional condition or metabolic decline is more conspicuous and serious than the pulmonary lesion itself until secondary infections occur. Treatment of pulmonary tuberculosis except in the earliest stages usually calls for much more than control of the tuberculous infection. In fact clinical experience has repeatedly shown that the tubercle bacilli can many times be safely ignored if the nutrition and general vitality of the body can be substantially elevated. In other words pulmonary tuberculosis in most instances is a sequel to some form of bodily decline that—to use a common illustration—prepares a favorable soil for the implantation and growth of the tubercle bacillus. Therefore, it is the basic condition or state of susceptibility that requires main attention in any well directed plan of treating tuberculosis of the lung. As for Dr. Friedmann's remedy, even though it possesses the full specificity claimed for it, it is evi-

dent that in advanced or late cases of pulmonary tuberculosis it can accomplish very little.

So we believe that medical men without delay should do their utmost to prevent the widespread creation of false hopes by pointing out the limitations of any specific treatment for pulmonary tuberculosis in its advanced or late stages. In all fairness to Dr. Friedmann, it must be said that he is not to blame for any impression that his remedy will cure consumption in its late stages. Nothing that he has said or done warrants the conclusion that he expects his remedy to perform miracles. His personal attitude has been a conservative one and the great care with which he studies the history, clinical course and physical condition of each patient indicates very plainly that he recognizes the essential limitations of his remedy. This is as it should be and more than anything else inspires confidence in his work.

Let it not be forgotten, therefore, even though Dr. Friedmann's treatment meets every warranted expectation, that there must be no relaxation of those prophylactic and hygienic measures that must still remain our most formidable means of preventing and controlling pulmonary tuberculosis.

City and country death rates deserve a little more study, for on the face of the returns it is safer to live in New York City than out of it. That is, in spite of the positive proof that the city environment is injurious to certain types of physique, we are confronted by the figures which show a smaller death rate than the rural districts. It would be absurd to advise surburbanites to move to town on such slight evidence and we must continue to advise people to get out of the city in the summer. What then is wrong? The figures must be correct, surely, so we must be misinterpreting them. As we have repeatedly shown, death rates of themselves do not give accurate information as to relative morbidity of two compared places. The birth rate very greatly modifies the matter because of the enormous infantile death rate. If few babies are born in a place, it may have a low death rate, though more unwholesome than another place where a high birth rate keeps the general death rate very high. But, we are informed that the birth rate is far greater in the city than in the country, though it may have been the reverse a century ago, so this fact if true would indicate that the city is far more wholesome than the figures show, and the puzzle is worse than ever. It will not be solved without a careful comparison of the death rates in the two environments for each decade of life. Even this will not give us true information, because certain infections like typhoid are badly guarded against in the country and ought to be considered as avoidable accidents which raise the death rate in what is a very wholesome environment when a person exercises common sense in it. If a large number of mt[illegible]ers occur, the place may be dangerous but not unwholesome. We run risk of murder in one place and typhoid in the other, yet both might be worthy of rank as health resorts. The death rate gives the risk, not the climatic or environal effect on the physique. The superlative excellence of city sanitation in the elimination of typhoid and other infections thus tends to hide the subtle influence of city life *per se*. In the long run

it wipes out certain types now as ever. And by the same token, the survival of the fittest is filling all large cities of both Europe and America with masses of brunets of short stature who are so well adjusted to such a life that they may have lower death rates in each decade of life than the surrounding country folk, and who would perish if sent to the exposures of farm life in winter. Our health authorities then must tell us what types are dying more numerously in the country than in the city—the aggregates give no information whatever as to the dangers of the city's summer and the country's winter, or what types suffer the most and at what ages. Let us have a little anthropology in our vital statistics so that we will not advise a country vacation for one who will be harmed by it. Many a man is worse after his summer's rest and many another had better take his rest in the winter. Yet all we can say positively is that the year round city people are safer in the city than country people in the country. We think it safe to say that when country people learn to avoid infections the advantage will be with them. Moreover, it will be safer for some to spend their summers in the country and others in the city, and still others will have to reverse the process as to winters.

Governmental life insurance seems to be feared by the privately owned and mutual companies in America, but as far as we are informed they are needlessly alarmed. Some kind of public assistance to the widow and minor children will be given in case of great poverty, such as the German method of paying the rent, but these are the ones who rarely, if ever, take out insurance. The policy will not be to take over the existing business as that is for the more provident well-to-do classes. Governmental aid abroad is being extended to those who cannot help themselves. It is one of the rapidly increasing agencies to lessen the direful results of poverty; and the ones assisted to survive are the least efficient. We can no longer call them the least fit for survival, if they are destined to survive as a class. It seems as though the trend of social evolution is to consider everyone born as fit for survival and that it is the duty of society to get as much good as it can out of every man, no matter how low in the scale of efficiency. His children are not to be allowed to perish as of old but are to be put on a self-sustaining basis or confined where they cannot reproduce their kind. It is useless to discuss the wisdom or lack of it in this movement, as it seems to be an universal one throughout the civilized world. Selection will go on as it always has; the least efficient will merely not produce their kind to be public burdens. There is nothing to worry about in great social movements for they go so slowly that adjustment is painless and the result for the general good. Our insurance companies are outside of the sphere of governmental activities, and it can be accepted as an axiom that they will be more efficient if they continue to be private institutions, but as they serve public ends they must be under strict control to prevent private abuses and misuse of funds. The scandals of a few years back are not forgotten yet.

Public insurance against accident and disease is a far more important matter than life insurance, and in this direction European nations are quietly working out

what is virtually a great social revolution. In Germany the system seems to be successful beyond the hopes of its originators. The employer pays half and the workman half, and in the case of disablement the patient is sure of subsistence and care, while the doctor, nurse and druggist are sure of payment. The people are tremendously pleased with the results so far and pay the few cents weekly tax with more than contentment—indeed they would be greatly grieved if deprived of the privilege and now they rather consider it an inalienable right. The surplus funds are carefully invested, so that the money really returns as loans to the people who make it gain far more than the interest and far more than the laboring man could make it gain. It seems to be profitable all around and the expenses of management are quite reasonable. There are some evils in the way of unconscious exaggeration of illnesses which would be ignored if one was not sure of help, and there may have been a few frauds which now compel the administrators to be strict to the point of parsimony, but all this is trivial compared with the vast benefits to those temporarily disabled and a burden to relatives. Of course those who never, or rarely, get sick or injured are the ones who really furnish the funds, and though they get out of it far less than they put in as in the case of insured people who live longer than the average, yet they have the sweet consciousness of helping people who may be more unfortunate than inefficient. Our professional interest in the system is very great, in fact vital, for it is the solution of many of our troubles, chiefly the free services we are compelled so often to give to our own loss and the pauperization of the sick. It would not be necessary to charge the rich so much more than the poor, if we were paid for all our work. It is high time we introduced the system in America. It might be made voluntary at first. It is a remarkable fact that compulsory insurance was forced on the German government by the people and yet we who claim to be the most democratic of nations do nothing for ourselves. Somehow, we dread governmental agencies, but it is time now to determine whether it is not a governmental function to help the people to greater efficiency—something far from life insurance in principle. Let our publicists study the practicability of compulsory insurance and old age pensions.

The New York farm colony for tramps and drunkards is soon to be organized and we learn that a layman has been (or is to be?) selected as superintendent. This institution is essentially a hospital for the care and possible cure of desperate sick men, and no one except an experienced physician should be in charge of it—preferably, of course, a capable neurologist, as the basic cause in nearly every case is a profound exhaustion of the nervous system. It is neither an insane asylum on one side nor a work-house on the other, nor is it in any way allied in function to the public and private homes for the superannuated or chronically and incurably disabled. It is a hospital for the treatment of a diseased condition of the nervous system and the cases require to a very high degree scientific medical management which no layman can give and perhaps few can understand. Lay control means failure. We have long ceased to allow laymen to control such cases when there are mental symptoms superadded, and it is as highly essential to have a neurologist

for these nerve cases as it is to have an alienist for the mental cases. From the experience of similar institutions in Switzerland and Denmark, we have no hesitation in asserting that if proper technical skill is employed, it will be possible to restore the majority of the cases to a self-supporting basis. Many of them will have to learn new trades in place of the ones which destroyed their nervous strength, and no one except a neurologist is capable of determining what work such cases should take up. Above all else we protest against the lay opinion, so commonly expressed, that these men are merely lazy or vicious and in need of discipline. Every case fully realizes his condition and would give worlds to be as other men are, but not one of them knows what is the matter nor that relief is possible. So they passively yield to the terrible impulsion to drink and travel, thereby only increasing a disease which needs rest and food. In a few years organic changes prevent recovery, and we must care for such dements as we do for the insane. All this also requires technical skill which cannot be properly given by a physician who is under lay control, and it will be disastrous to attempt such a system. The colony is in danger of being ruined unless we start it right—and the right way of controlling any class of sick people is to put the control in the hands of doctors who have specialized on that disease.

The causes of pellagra and cancer are still under investigation by very numerous workers with the drift of opinion towards a living cause for the former and a dietetic one for the latter, while the great majority of the profession still incline to the opposite view that bad corn causes pellagra, and a parasite, cancer. The Pellagra Commission from the N. Y. Post-Graduate Hospital is reported to have collected an enormous amount of information in South Carolina, but a superficial study reveals no common factors and it will be a long time before the data can be properly studied to bring out any generalization at all. This is unfortunate but inevitable and we must possess our souls in patience. In the meantime there is a constantly increasing number of cases in the South which call for relief. It is said that there are now 50,000 of them, and if to these we add the hook worm victims, we must confess that the South has more than its share of trouble. The problem must be solved quickly and we must also find out why the disease was not recognized sooner if it has been here so many years. We are much inclined to believe it a recent importation, because it surely would have been recognized if only a few hundreds had existed. Should this be a correct view, it certainly points to a parasitic cause, though it will not do to dogmatize. Beriberi proved to be dietetic, although the evidence pointed to a living cause. We have learned that the cancer which threatened to extinguish our trout has mysteriously disappeared here and there as though there had been a temporary dietetic cause such as could have resulted from meteorological changes. The fifty thousand dollars appropriated by the New York legislature has so far had no result which could shed light on the causes or cause of fish cancer, and now we would like to suggest that there be some discussion of the advisability of more appropriations to study the parasitic human diseases which might come from fish or other lower animals living in or near water.

MEN AND THINGS.

The presentation of Brieux's "Damaged Goods" as announced in our last month's issue took place according to arrangement on the afternoon of March 14th. The audience—one of the most intellectual and cultured ever seen in New York City—showed a keen interest in the problem unfolded by the group of players Richard Bennett had induced to give the play. As is pretty generally known Brieux's famous play depicts the dangers of syphilis, especially to the innocent. It is not necessary to outline the story, but suffice it to say, that the author with consummate skill emphasizes the evils of ignorance, the dire results of which so often occur solely because, as the Doctor says, "they didn't know."

Those who were fortunate in getting seats saw a finished performance that reflected great credit on every one taking part. Wilton Lackaye as the Doctor and Richard Bennett as the young husband who disobeyed the doctor's mandate that he postpone his marriage for several years, never appeared to better advantage. Indeed it is doubtful if these splendid actors have ever done any finer work in their lives than the portrayal of these two leading characters of Brieux's play. No one who saw them will soon forget the finesse with which each played his part. Quite as much commendation can be given to the rest of the cast and it is rare indeed that a group of players presenting such uniform ability and talent is brought together. Throughout the play there was in evidence an earnestness and sincerity, that plainly reflected a general recognition by every member of the cast of the epoch making character of the undertaking.

Without the slightest desire to exaggerate it can be said that no recent event of sociologic importance has had more far reaching possibilities along practical lines than the presentation of "Damaged Goods."

It augurs well for the *morale* of the stage when our leading actors and actresses are willing at great personal sacrifice to give their time and effort to the promulgation of truth and the promotion of ideals. The educated and cultured people of New York owe a real debt to Richard Bennett and his associates for their courage, zeal and broad humanitarianism. That their efforts were appreciated has been pretty conclusively indicated by the fact that two overflow performances have had to be given to accommodate those who were unable to get seats at the first presentation. It is also significant that the play will be reproduced in Washington as a result of a special invitation from certain Washington people who recognized its tremendous possibilities in connection with urgently needed legislation. In every respect the enterprise reflects great credit on all who have aided in any way to make the reproduction of this remarkable play, a sociologic as well as dramatic success. We are especially proud that an American medical journal should have been an important factor in this splendid undertaking and contributed so much to its gratifying outcome. We extend to the *Medical Review of Reviews* our heartiest congratulations for its splendid work and the success that has crowned its unselfish efforts.

Dr. William Beaumont.— A little more than one hundred years ago—namely, on June 9th, 1812—says a writer in the *London Lancet* (Mar. 8, 1913) a license was granted to William Beaumont, of the Third Medical Society of the State of Vermont, to practice physic and surgery, and ten years later occurred that tide in his affairs which, taken at the flood, led him to fame, if not to fortune, for it was then that he came into contact with Alexis St. Martin, and began to conduct the physiological research which practically laid the foundations of our knowledge of the physiology of digestion. Although several cases of gastric fistula had been reported before Beaumont's day, yet in none of these, except one, do we find that any experiments upon digestion were made. The earliest deliberate experiment upon digestion which we can call to mind was made by the Emperor Frederic II, *circa* 1240, who, as recorded in Salimbene's Chronicle, fed two men at dinner. One of these was then sent to sleep and the other to hunt. In the evening the two men were disem-

bowelled, as the Emperor wished to know which of the two had digested the better, and the physicians gave a verdict in favor of him who had slept. Another and even worse instance is on record of some sixteenth century Calvinists in the Low Countries. Having seized an aged Catholic priest they roasted his legs before a fire and, cutting off the cooked portions, made him eat them. Then, wishing to see how digestion progressed, they cut open his stomach, so that he died. Such experiments, however, can scarcely be called scientific, and it is Beaumont's glory that with very imperfect apparatus, and under most adverse circumstances, he was able to make such sound observations as he did, and to keep such admirable records thereof. An interesting study of Beaumont's life has been recently published by Dr. Jesse S. Myer, of St. Louis.[1] From this we learn that William Beaumont was born on Nov. 21st, 1785, being the third son of Samuel Beaumont, a farmer, of Lebanon, Connecticut. He attended the village school and worked on his father's farm until he was 21, when he left home to seek his fortune. In the spring of 1807 he arrived at Champlain in the State of New York, close to the Canadian frontier, and after finding employment as a schoolmaster determined to study medicine. With this object in 1810 he went to St. Albans, Vermont, where he bound himself apprentice to Dr. Benjamin Chandler, who seems to have been a most admirable teacher. Beaumont's case-books kept by him during this period show that he soon began to be an excellent observer. In June, 1812, he received his license to practice, and on the declaration of war with Great Britain he applied for and obtained a post as surgeon's mate in the army, his commission being dated Dec. 2nd. In March, 1813, his regiment was sent to Sackett's Harbor on Lake Ontario, and on his arrival there he wrote to Dr. Chandler giving sundry military details, varied with medical matters, such as: "The old Brunonian practice, a little varied and changed into the Chandlerian, succeeds almost to a miracle." He adds with a laconic brevity which would have endeared him to the heart of "brave Broke" of Shannon fame: "Yesterday we shot a soldier of the marine corps for desertion; we could not obtain the privilege of dissecting him. Next Thursday another is to be shot." Beaumont was present at the battle of Little York, April 27th, 1813, at which he noted with disapproval the "inhuman project" of the British in blowing up their magazine, and at the battle of Plattsburgh, August, 1814. In June, 1815, peace having been concluded, he resigned from the service and started in private practice in Plattsburgh, combining professional work with the keeping of a store for "drugs, medicines, groceries, dye woods, etc.," the etc. including such articles as "segars, gin, snuff, plug and paper tobacco." In March, 1820, he re-entered the army, and was sent to Fort Mackinac on Lake Huron. In 1821 he married Mrs. Deborah Platt, and in 1822 came to the turning point of his professional life. On June 6th of that year a number of Canadian voyageurs were in the store of the American Fur Company at Mackinac, and by the accidental discharge of a shot gun Alexis St. Martin was wounded in the abdomen. The gun was so close that St. Martin's clothes were set on fire, and the charge, duck shot, was practically solid. The wound was on the left side, and opened both the thoracic and the abdominal cavities. Sundry ribs were fractured, one of which tore away a portion of the wall of the stomach, and a large part of the left lung came out of the wound. In addition, the tissues were full of shot, bits of cloth, and fragments of bones and cartilage. Beaumont's description of the wound and his treatment is very full and extraordinarily interesting. A good deal of the lung sloughed, but the patient's recovery though slow was uninterrupted. It was then that Beaumont began that masterly series of experiments which were continued at intervals for some 11 years. From his Government Beaumont received the consideration which Governments commonly show towards scientific investigators, that is to say, indifference. In 1840 he retired from the army and took a country place near St. Louis. He died on April 25th, 1853.

[1] The Life and Letters of Dr. William Beaumont. By Jesse S. Myer, A. B., M. D. With an Introduction by Sir William Osler, Bart., M. D., F. R. S. London: Henry Kimpton. 1912. Pp. 317. Price 18s. net.

ORIGINAL ARTICLES.

STUDIES IN GYNECOLOGY AND OBSTETRICS.

BY

ELLICE McDONALD, M. D.,
New York City.

CHAPTER I.

STERILITY IN THE FEMALE; ITS ETIOLOGY AND TREATMENT, WITH REPORT OF A CASE OF INSTRUMENTAL IMPREGNATION.

General Considerations.—The most vital instinct is embodied in the question of child bearing and sterility. The unhappiness and longing of some sterile women no male mind can fathom. The unsatisfied maternal instinct is a misdirected, unnatural expression of a strong inherent force. This instinct is at best the most vitally unselfish of all desires and emotions with which nature has endowed the human race. Few women are voluntarily sterile, and no woman exists whom at some time in her life did not wish for a child.

For these reasons sterility is in women the most pathetic and touching of all the ails that feminine flesh is heir to. The amount of our knowledge of its causes and of the processes of reproduction up to a few years ago have been ridiculously small: but more recent investigation begins to throw some light upon the subject.

The average interval between marriage and the birth of the first child is seventeen months, and the probability of impregnation decreases thereafter. Only twenty-five percent. of women bear their first child after four years. A union may be regarded as presumptively sterile when after three years of married life no child has resulted. Norris thinks that this time should be reduced, and that a union should be regarded as sterile if no child has resulted within two years after marriage. It may be that the truth is midway between the two opinions.

Etiology.— Of the various causes of sterility in women, the chief cause of the large majority of cases is lack of development of the genitalia. This usually takes the form of the infantile uterus and the mal-development may involve the vagina and external vulvar parts. Hypoplasia and arrested development are the usual forms and it is frequently hereditary.

This infantilism may exist in varying degrees. It may be associated with other evidence of congenital hypoplasia, *asthenia congenitalis,* or it may exist alone in the uterus.

When there are other evidences of infantilism, it is commonly associated with right floating kidney, masculine pelvis, long back, cannon ball abdomen, intestinal ptosis, proportionately small head, weak ligaments, high-roofed mouths, lobeless ears and other evidences of physical degeneration in women under weight and with unstable nervous systems. With these associations, the infantile uterus, undeveloped vulvar parts and constricted vagina are almost always present. This type of woman begins to menstruate late in life, and ceases early. Their menstruation like the rest of their functions is subnormal, small in amount, and short in duration. The premature menopause of cessation of the menstruation, between 28 and 38 years of age, is not infrequent with this type.

While this is the extreme type of infantilism or hypoplasia or asthenia con-

genitalis, it is common to find all degrees and minor evidences of infantilism existing alone. In the genitalia, the infantilism is often confined alone to the vulva and vagina or vagina cervix or uterus alone.

When the uterus is infantile, it retains the shape and appearance of the uterus of the girl before puberty. It may take one of two types. It may be long and slender with a small fundus, a long isthmus and a long conical cervix, or it may be shorter with a long isthmus, small fundus, and a small cervix with most of the cervix being placed above the insertion of the vagina, and a little projecting. The first type usually has a marked anteflexion and the second type is frequently associated with a vagina markedly narrowed in its upper part.

The infantile uterus usually has a long isthmus with the plicae palmatae of the mucosa of the isthmus well marked and longitudinal instead of being thin and horizontal or twisted.

The vagina is commonly involved in the infantilism of the uterus, and this takes the form of a narrowing, particularly of the upper part or vaginal lake, so that instead of being balloon or pear-shaped with the largest end upwards, the vagina is tubular or sausage shape. As a result of this, the semen is not retained where it should be after coitus.

The vulva may be also involved in the infantilism and it is here that inspection is of great value in making the diagnosis. The chief change is in lack of development of the labia minora. The labia majora are also small, the clitoris is undeveloped and the whole vulva gives the impression of lack of development and nutrition.

This genital infantilism seems to occur in planes, one of which is the fundus of the uterus; the second, the cervix and upper part of the vagina, and the third the lower part of the vagina and external genitals. Any one of these planes may have lack of development alone, although it is more common to find two planes associated. It is possible that when one is infantile the others are also although our methods of examination cannot detect it.

Genital infantilism is the cause of al-

Fig. 1. Starlinger's dilators.

most all the cases of sterility in women. Of course, there are many other isolated causes, such as ovarian disease, tubal disease, misplacement, perineal lacerations, lactation, thyroid disease, diabetes, tertiary syphilis, uterine tumors, imperforate hymen, vaginismus, etc., but these are only occasional in their occurrence while sterility is a common association of genital maldevelopment and mal-development is the chief cause of by far the great majority of cases of sterility. It is essentially lack of function from incompetence and unfitness.

One effect of the infantilism in the vagina is that the semen cannot readily be

retained, as it should be in the contracted vagina. Fruitful normal women retain the semen while sterile women commonly lose it. Runge has shown that thirty-two hours after coitus there was spermatozoa in three-quarters of all fruitful women while only one-fifth of the sterile women had spermatozoa in the vagina. At the end of thirty-six hours, the proportion was two-thirds of the fruitful and only an occasional sterile woman had spermatozoa remaining.

The infantilism is not unlike that atrophy of the uterus which sometimes comes during lactation. The best treatment for infantilism is pregnancy which increases the blood supply and development and wards off many of the evil symptoms of infantilism of the genitalia, known symptomatically as the premature menopause, neurasthenia gastroptosis, etc. It is for this reason that patients in this condition should be encouraged to undergo treatment for sterility.

Fig. 2. Stem pessary.

The majority of cases of sterility are caused by infantilism of the genitalia. Other causes as before mentioned are occasional; but this is constant. It is not believed that endometritis or alteration in the vaginal or uterine discharges play much part in the production of sterility. I have seen two cases in which membraneous endometritis seemed to be a factor; but they were the only ones I have ever seen in which endometritis influenced the condition. Chronic endometritis is a rare disease. Chronic endocervicitis, which is usually meant when endometritis is spoken of, is a common form of gonococcus infection. It occasionally causes sterility; but not often, as is proved by the report of maternity clinics. Gonococcus salpingitis is a more common cause of sterility although cases of pregnancy have been reported where there were pus tubes on both sides. These causes are by no means frequent, and I do not believe that the gonococcus is responsible for nearly as many cases of sterility in women as are commonly ascribed to it.

But as has been said these causes are only incidental and the chief and constant factor in infantilism of the genitalia or mal-development or lack of function from genital mal-development or congenital hypoplasia of the genitalis or asthenia congenitalis, all of which mean the same thing. This condition does not improve without treatment. If the function is not exercised, it disappears. So the infantilism of the genitalia without pregnancy or treatment ends in various nervous manifestations associated with decrease in menstruation or the premature menopause.

The prognosis of the condition must be based upon the local condition of the dis-

ease and upon the general evidences of infantilism. If the infantilism is slight in degree, the woman otherwise well developed and the evidences of function as judged by the menstruation good, the prognosis is good. The general condition of robustness, vital force and general health must enter into the prognosis. Infantile genitalia sometimes may exist in a marked degree in women who are of the athletic type or in women who are of the pudgily fat type. This last is itself probably an expression of the infantilism.

The local conditions, the amount and regularity of the menstruation are the chief factors in the prognosis. If there is evidence of the premature menopause, as shown by irregularity and lessening of the menstruation, this is not a good sign in the prognosis.

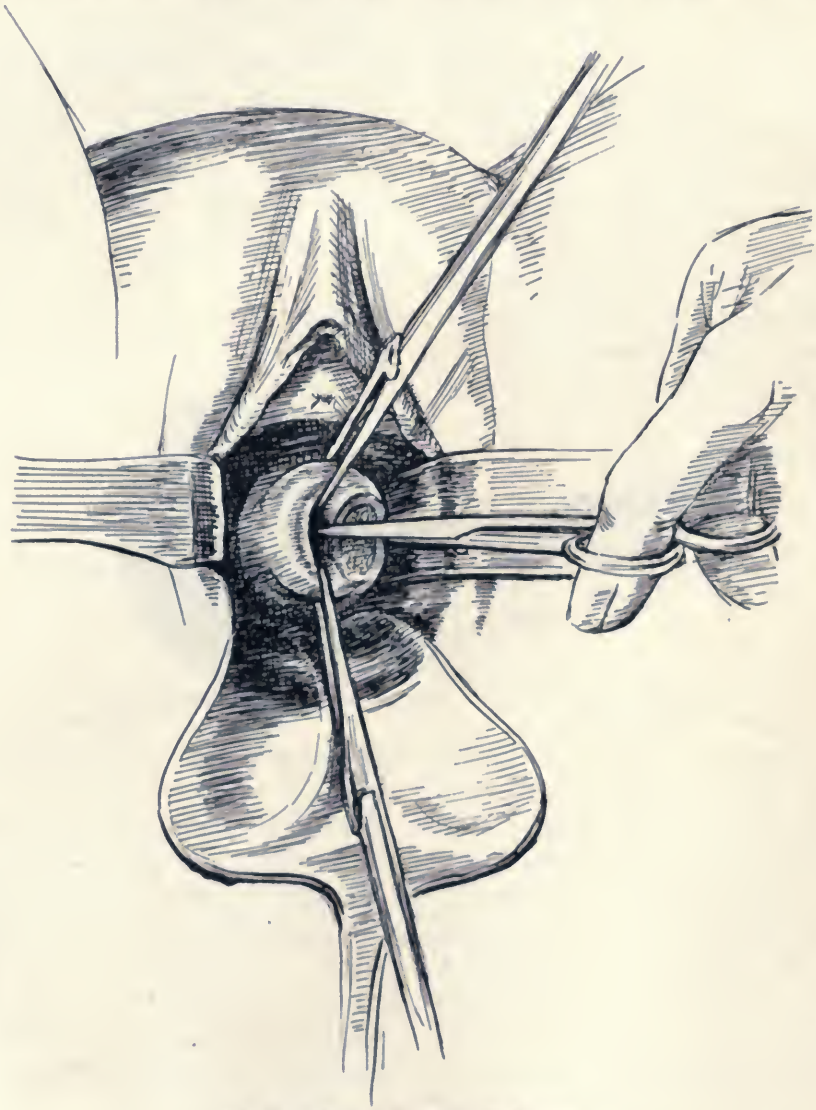


Fig. 3. Fenwick-Pozzi operation.

The male semen should always be obtained in a condom or from the vagina, and

examined before any treatment is undertaken. It is best examined upon the dark ground illumination; it is probable that sterility exists in a considerable proportion of men—placed all the way from 10 to 50 percent. In a previous exhaustive paper[1] upon this subject, the percentage of probable male sterility was placed at 25 percent. It is believed, however, that this is too high. Epididymitis is the chief cause; but it is probable that, of men having had specific urethritis, not more than six or seven percent have azoospermia from this cause. Of those who have had epididymitis only ten percent are potent; but epididymitis occurs only in about seven percent of cases of urethritis, according to Finger's statistics.

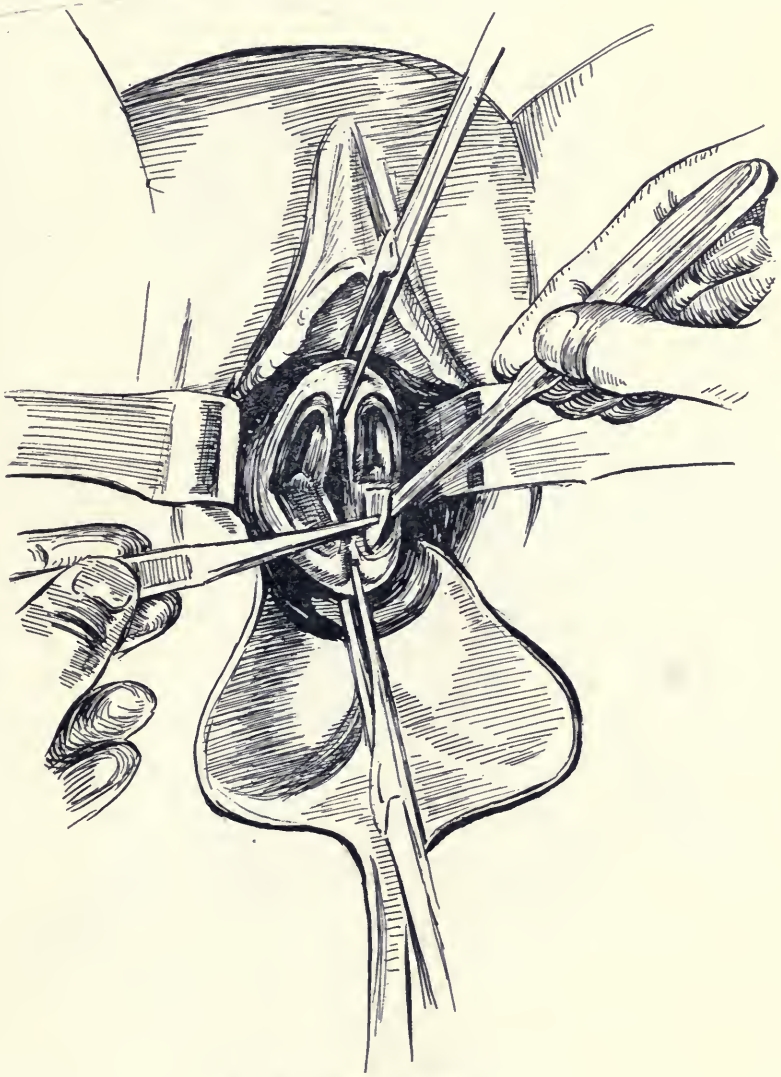


Fig. 4. Fenwick-Pozzi operation.

Infection with Neisser's coccus in women is not a frequent cause of sterility.

[1]McDonald, Ellice. Sterility in Women. *N. Y. Med. Jour.*, 1912. Dec. 23 and Dec. 30.

Bumm states that one-fifth of the women delivered again and again in the maternity suffer from chronic infection from this organism. Stone and the author, found that a very large percentage of maternity cases suffered from this disease. It is much more apt to cause one child sterility on account of its tendency to spread upwards after birth of the child. The enlarged cervix of chronic gonococcus infection with the mucoid discharge may cause sterility but not usually.

Treatment.—*The treatment of sterility apart from isolated local causes is the treatment of the infantile uterus and vagina.*

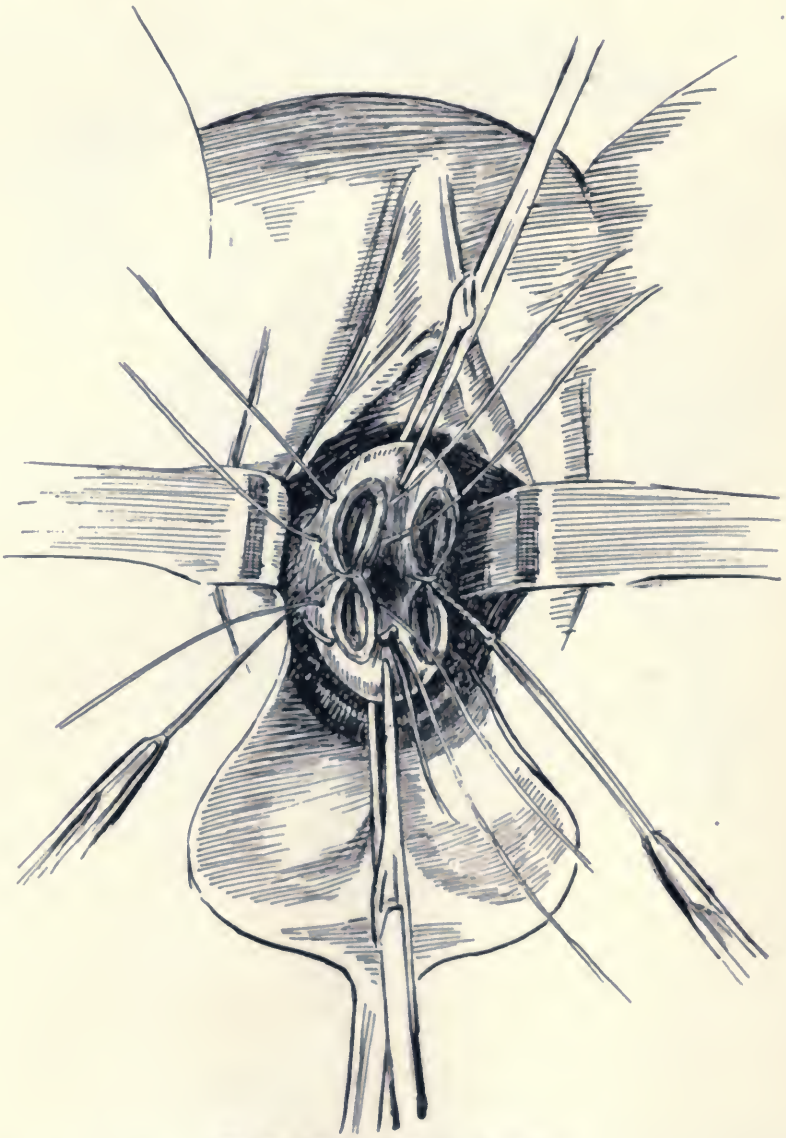


Fig. 5. Fenwick-Pozzi operation.

The woman should be put upon a spare diet and reduced if she is fat. Excessive fat is a bar to conception, as is well known among breeders of horses and dogs. A

too generous diet is not proper. A stated amount of exercise is to be advised.

An alkaline douch should be given in order to wash away the cervical mucus and to create an alkaline medium in the vagina as the spermatozoa live best in an alkaline solution.

The following prescription for powders put up in wax paper is useful.

℞

Sodium bicarbonate 5i
Sodium carbonate 5i

M. Sig. Douche daily with one powder in 2 quarts of warm water.

The sodium carbonate dissolves the leukorrheal discharge and the bicarbonate the mucus.

The patient should take extract of corpus luteum as corpora lutea of beef ovary gr. V. t. i. d. p. c. This has been proved to be an ovarian stimulant and to increase the genital function in cases of deficient menstruation in the premature menopause. It sometimes increases the menstruation very decidedly, and relieves the nervous symptoms of the lessened menstruation.

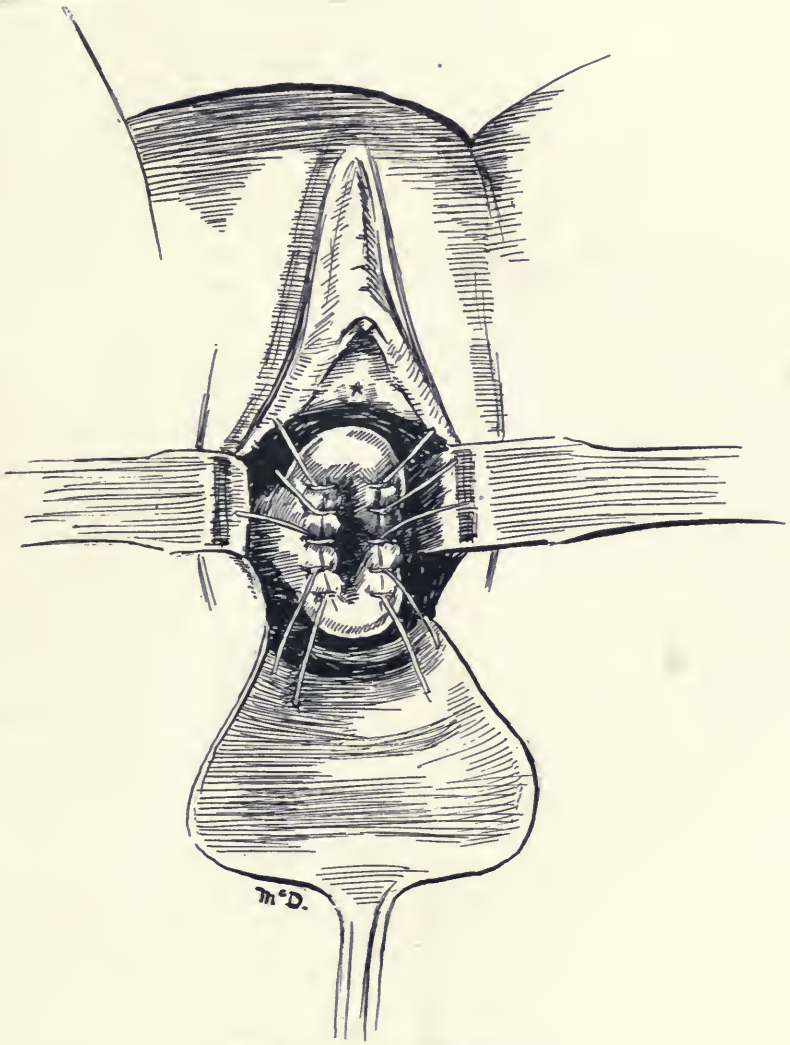


Fig. 6. Fenwick-Pozzi operation.

Corpus luteum[1] has also been proved in animals to have an influence upon the embedding of the ovum, and may do the same in women. It can do no harm.

The treatment of sterility, however, is chiefly the treatment of the infantile uterus and vagina. The vagina should be tested by injecting a colored gelatinous fluid to see whether it is retained. And, if it is expelled, the vagina may be dilated by a pessary while other procedures are being done to the uterus.

The treatment of the infantile uterus must be that of development and dilatation of the cervix. The development may be done by electrical treatment with the constant current or by the stem pessary. It should be stated here that mutilating operations should be a last resort in sterility, and that treatment is as a rule most successful which causes the least trauma. At the same time, operation is frequently indicated upon the cervix.

Absence of infection should be necessary in the electrical treatment or the stem pessary. Electrical treatment is done by the constant current with electrodes which can be sterilized about fifty milliamperes for five minutes with the negative pole in the uterus two or three times a week. It regulates the menstruation and the uterus increases in size and weight. Apostoli has reported 80 cases of conception following this treatment. It offers good results if the operator be patient and carefully clean.

Dilatation of the cervix may also be done as office treatment; but it is unsatisfactory at best.

If the patient is more than slightly maldeveloped, it is best to treat her by dilatation of the cervix and introduction of the stem pessary under an anesthetic. It is hardly possible to introduce the stem pessary properly without an anesthetic.

The uterus should be well dilated with small smooth dilators which cause little injury, particular care to be taken to dilate the upper part of the cervix at the internal os. Curettage is not necessary nor to be advised. A previous curettage gives a bad prognosis for the future treatment: it usually causes formation of scar tissue and lessens the menstruation. There is no reason why the uterus should be scraped; it denudes itself without this once a month. The pessary should be firmly inserted and sewed in or kept in by a pessary below. The stem pessary should remain two to three months. It causes no trouble at menstruation and patients often become pregnant while it is still inserted. It is the most satisfactory treatment for sterility and congestive dysmenorrhea.

This treatment is usually the most successful form of treatment to those cases of sterility to which it is applicable; but it should not be applied indiscriminately. Everything depends upon a correct diagnosis of the underlying condition. Most curative procedures are simple of execution; the selection of treatment is the only secret of medicine.

The choice should be between electrical treatment, pessary treatment, operation upon the cervix or other operative and general measures alone. This choice depends upon a knowledge of the vagaries of infantilism of the genitalia and the effect of this mal-development upon the reproductive processes.

Operation upon the cervix is suited to certain cases, particularly those with a long hard conical cervix and marked menstrual pain and congestion. It relieves the severe pain, and should but seldom

[1]McDonald, Ellice. Corpus luteum in decreased menstruation and the premature menopause. *J. A. M. A.* 1910. July 16.

be undertaken for sterility alone. The premenstrual pain furnishes the chief indication.

There are two operations upon the cervix which should be considered. The bilateral operation first described by Fenwick in 1903 and by Pozzi in 1909. The illustrations require no further description. The raw surfaces are covered as far as possible by the mucous membrane of the cervix and the aperture of the uterus left patulous. This is the preferable form of operation and Fenwick had a relief of dysmenorrhea in 91 percent and a cure of sterility in 75 percent of those cases traced. Pozzi's results are less accurately stated, but he had fourteen pregnancies in fifty cases treated both for sterility and dysmenorrhea. This operation is the last resort in sterility from infantile or undeveloped uterus with a long cervix and associated with dysmenorrhea. It should never be done in the presence of infection and general therapeutic measures and alkaline douches should be used at the same time.

The other operation is slitting of the posterior lip of the cervix of v. Herzl and Dudley. This is also of benefit in dysmenorrhea, but it is questioned whether it is as efficacious as the previous operation although based upon the same principle.

Operation upon the cervix is not indicated except when sterility is associated with considerable dysmenorrhea. That treatment is most successful which keeps the parts most normal and mutilates the least, so, unless exactly indicated, operation of the cervix should not be done.

Instrumental impregnation in certain few selected cases is occasionally of value. Ivanoff's remarkable results in animals have increased experimentation in this method. He experimented in guinea-pigs, rabbits, dogs, horses, cows, sheep, birds and mice. He established the possibility of fertilizing mammals with semen in an artificial medium entirely free from the secretion of the male accessory glands. He found that the psychic condition of the female animal and the excitement connected with copulation had nothing to do with successful conception nor with the determination of the sex of the offspring. In his experiments, conception in horses occurred more regularly with artificial than with natural fertilization, when it was systematically conducted, utilizing the natural heat and the most favorable season of the year. Every one of his experiments in horses in the spring of 1901 resulted favorably. He suspended the spermatozoa in salt solution, Locke's or any weakly alkaline solution. The spermatozoa retained their fertilizing power for 24 hours after the death of the animal. It was not necessary to introduce them into the cervix as a large number of experiments resulted positively from the spermatozoa being merely placed in the vagina.

These experiments encouraged me to make trial of instrumental impregnation. A scientifically trained chemist, whose wife was sterile, asked me to undertake this form of treatment before any other.

Mrs. B. 27 years of age. Married six years, and had had no conception, although anxious for children. She was five feet two inches in height, weighed 120 lbs., and showed signs of congenital infantilism. She had a right floating kidney, a lobeless ear, a high roof to her mouth, flat feet, double jointed elbows, knees which dislocated easily, and was almost without pigment in the hair and eyes. Her uterus was small, infantile of the second type with a small cervix. Her vagina was sausage shaped and the external genitalia were infantile and poorly developed. Her pelvis was slightly contracted and masculine. True conjugate was 10 c. m. She began to menstruate at 14 years and menstruated 2½ to 3 days with moderate flow and slight pain. She complained of backache, I advised a stem pessary but, on account of a

mitral stenosis, this was debated, until at the solicitation of her husband, instrumental sterilization was attempted.

The course of treatment was as follows: She was put upon corpora lutea of beef ovary and alkaline douches. Four days after menstruation the semen was brought in a fish-skin or parchment condom which had been soaked in normal salt solution. The condom with the resulting semen was immediately placed in a thermos bottle—the condom was allowed to hang down into the water at a temperature on insertion of 100° F. The loose or open end of the condom was caught beside the cork. The patient took an alkaline douche and brought the bottle to the office. The semen was removed and placed in Locke's solution to the viscosity of thin syrup. The temperature was kept about 98° F. by means of a water bath. Injection was then made into the uterus by means of a thin silver canula, bent to conform to the shape of the uterus and a glass hypodermic syringe. Both these instruments were warmed in water before using. There was no attempt at dilatation of the cervix—nor of cleansing the vagina other than the alkaline douches. No speculum was used but the canula, full of the solution, introduced beside the finger. The instrument was passed into the cervix, passed the internal os, and about 0-60 m. of solution injected very slowly and gently into the uterus. Care was taken that no air passed in from the canula or syringe. This was done on the 11th and 19th of October. Her last menstruation occurred on the 6th of November, and she became pregnant, probably on the 19th of October. She passed her pregnancy fairly uneventfully, and labor was induced on July 4th, because of her contracted pelvis and mitral stenosis. It was thought at this time that the weight of the baby estimated by my methods was 6 lbs. 5 oz. She was delivered the same day, after a short labor, of a normal girl child weighing 6 lbs. 4 oz.: one ounce less than the estimated weight.

This case had no relations with her partner other than the two mentioned as he entered with zest into the scientific experiment, and believed that this was the only way he could have a child. The child has since thrived and grown tremendously.

Since this case I have treated four others, all unsuccessfully. One became pregnant while under treatment. She miscarried at two months. This case is not positive as she acknowledged relations with her husband during the time of treatment and outside of those necessary for the treatments. I consider this case very doubtful. The other cases were all cases of infantile genitalia.

Doderlein has also recently reported a case of successful instrumental fertilization. It is not a method which offers very great success, and should not be used save in carefully selected cases. Infection must be absolutely excluded. The injections should be done with the least possible trauma. The solutions should be mildly alkaline, such as Locke's. The spermatozoa stand heat poorly and so the temperature should never be above 100° F. The dilution should be to a thin consistency. They seem very much more active when there is considerable dilution. The solution should always first be examined under the microscope to ascertain the activity of the spermatozoa. The less trauma to the uterus from instruments the more probability of success.

It is not a treatment which commends to the esthetic tastes, but will occasionally give a good result, and no doubt some harm will result from ill-chosen cases.

The main indication in the treatment of sterility must be directed toward the chief cause, infantilism of the genitalia, particularly of the uterus. The treatment, if carefully done, should involve no injury or danger to the woman. Failure leaves her no worse for her experience; success brings a joy to the parents and a lasting visible satisfaction to the physician.

There is no more pleasant memory in medicine than the thought of such victories.

CHAPTER II.

THE TREATMENT OF CYSTITIS IN WOMEN, WITH REMARKS ON THE PRACTICAL VALUE OF THE CYSTOSCOPE.

The modern treatment of cystitis is the product of recent years: its development has depended upon improvement in the structure of the cystoscope and the increase in

skill and knowledge of its use. At the present time there is no reason why every inflamed bladder in women should not be examined cystoscopically and its treatment intelligently directed and controlled by visual inspection.

The passage of a small examining cystoscope of a No. 14 size (three-sixteenths of an inch in diameter) is not a matter which causes very great discomfort or disturbance. It can be usually slipped in without the patient knowing what is happening, if it is well lubricated, and examination can often be made by the retained urine alone without water dilatation. Examination through the urine, of course, does not give as good results as does water dilatation; but it is a useful method to avoid unnecessary manipulation. Cocaine or anesthetic solutions are never necessary in women. I have not used a cocaine solution for six years.

The ease of insertion of the modern cystoscope makes possible direct inspection of the site of inflammation and usual knowledge of the effects of treatment: in this way, it is possible to control and cure affections of the bladder in a direct and efficient manner. It is possible to make an exact diagnosis of the bladder lesion and appropriate treatment may be directed toward it.

If, however, no cystoscopic examination is made in cases of cystitis, it is impossible to localize the site of inflammation, acquire any knowledge of its size and location, or eliminate grave and dangerous affections of the kidney and adjacent organs. Many bladder and kidney lesions may produce mild symptoms, yet be of such momentous character as to make their early diagnosis a necessity for the welfare of the patients.

It is possible with the cystoscope to detect the presence of inflammation by the appearance of the bladder; ulcers and tumors of the bladder wall are readily seen and treated; the source of blood in the urine, that most important symptom in genito-urinary conditions, may be definitely located and appropriately treated. An intelligent prognosis cannot be reached without a definite diagnosis of the kidney and bladder condition, and this cannot be done without visual inspection of the bladder wall and ureteral orifices; it is often necessary in addition to catheterize the ureters and obtain urine from each kidney for examination.

The cause and progress of the bladder disease and the effect of treatment upon the condition may be minutely followed by the cystoscope. Treatment may be changed to meet conditions that may arise and harmful procedures may be eliminated. There is no more reason why the female bladder should be treated without a cystoscope than the eye without an ophthalmoscope, or the nose and throat without visual inspection.

Five years ago I published the records of forty-five cases[1] of cystitis studied cystoscopically with the protocols in detail and deductions as to their treatment. This report is to relate further experiences with that treatment and reference only to particularly interesting cases will be made in order to avoid elaboration of reports.

Cystitis is a very common disease in women and is very frequently overlooked. This is because the very commonness of the disease leads women to believe that a certain amount of frequency of urination is normal and usual. This can be easily proved by asking every one of your woman patients how often she gets up at night to urinate. A woman does not get up at night

[1]McDonald, Ellice. Cystitis in women with report of forty-five cases studied cystoscopically and some modifications of treatment. *Med. Rec.* 1908. Feb. 22.

to urinate unless her bladder is not normal. Women think that a "cold in the bladder" is a usual occurrence likely to happen to any person, and do not think it the result of an inflammation or infection.

The study of the disease and its treatment is impossible without an understanding of the pathology of the condition.

The most common condition is chronic inflammation of the trigone or trigonitis, which results usually from a simple hyperemia and congestion of the vessels; actual infection may precede or follow the congestion. The line of separation between chronic congestion and chronic inflammation is often hard to determine. There is usually hyperemia with marked dilatation of the blood vessels. The intimate relations between the vesical arteries and those of the neighboring pelvic organs makes this very easy. The membrane loses its lustre, the mucosa becomes reddened and there is evidence of flaky desquamation and exfoliation of epithelial cells, leukocytes and pus. In a later stage, the mucosa of the trigone becomes velvety in appearance and, in some cases, there are proliferating processes which may lead to papillary or papilloma-like excrescences.

In pregnancy, this picture is exaggerated, as described in another article, with a considerable thickening of the bladder wall, increase in the lymphatic tissue, hypertrophy of the muscle, and a more profuse desquamation, of epithelial cells and pus. Altogether the bladder wall appears softer and thicker.

The tendency toward epithelial proliferation is marked in the acute stages of cystitis, and more so in cystitis of pregnancy. A change from the normal bladder mucosa usually occurs. The epithelium is thickened and papillary projections may rise above the surface. These processes may take on alveolar arrangement below the surface.

In chronic cystitis, the changes are more general: the mucous membrane has lost its normal pinky white appearance and appears more or less reddened. This reddening and inflammation may appear generally or only in patches as when the inflammation extends in streaks along the line of the blood vessels of the bladder wall. The mucosa is dull red in color and here and there may show small ulcerations. There is frequently desquamation of the epithelium and interstitial hemorrhages showing on the surface are not uncommon.

Those cases of chronic cystitis, which are accompanied by disturbances of the circulation or enervation of the bladder such as after certain operations, are often resistant of cure. For example, in fourteen cases after pelvic operations of various kinds, the inflammation was very difficult to cure. There were six complete hysterectomies, five ventro-suspensions, two cystocele operations, one perineorrhaphy, and one oophorectomy. The disturbance of anatomical relation in these cases seemed to be the cause of the difficulty of cure. It is interesting to note that, after supravaginal hysterectomy, where the cervix remains as a support to the bladder, there does not seem to be this difficulty. In the ventro-suspension, the bladder was divided into two cavities by the suspensory ligament and the uterus. The history of these cases has been temporary relief or cure with return of the bladder symptoms at varying intervals. The abnormality of the circulation and nutrition is sufficient to make the bladder a place of least resistance and cause a recrudescence of symptoms.

Retroversion also causes an aggravation of bladder symptoms and makes an obstacle to cure. It is not usually sufficient in itself to cause bladder irritation, but it sometimes aggravates it. This may be through the the fact that in retroversion there is sometimes residual urine: so that the bladder seldom gets thoroughly drained, or it may be from the alteration of the blood supply or enervation.

The muscle of the bladder is sometimes involved in the changes of cystitis and may hypertrophy and enlarge to project into the bladder as thick bundles or network, forming cavities into which the bladder mucosa may penetrate. This condition is usually associated with loss of bladder tone. This condition is suggestive of tabes, and was seen in three cases where there was no other evidence of syphilis. They were benefited by dilatation of the orifice and by faradization: treatment of the cystitis was done at the same time.

In these cases, there is usually a certain rigidity of the trigone, particularly of the ureteral orifices, which do not show their usual rhythmical, sphincter-like action at each exclusion of urine. The ridge between the two orifices is usually more prominent. There is usually residual urine, and the incontinence is incontinence of retention.

Stricture of the urethra is another lesion which is not confined to the male. It is usually associated with a sclerosing vulvitis, which sometimes comes in age, or after the premature menopause. It has been seen four times, and is usually associated with dilatation of the bladder and loss of tone with dribbling of urine. In one case it was so small as to hardly allow passage of a small filiform. Still, dilatation, first with urethral catheters and metal probes until a small glove-stretcher dilator could be inserted, cured all of them.

A direct history of syphilis was given in two cases which had incontinence of retention and loss of bladder power without any trabeculae or noticeable change in the bladder wall. One has a history of seventeen years with paralysis of the hand. She improved under faradization. In one case there appeared to be a syphilitic ulceration about the size of a dime upon the fundus of the bladder. There was some false membrane and it improved under mercury. Direct treatment did not seem to do it much good.

Chronic atrophic cystitis is not uncommon in women after the menopause, and it is usually associated with more or less sclerosis and atrophy of the vulvar parts. The mucosa in atrophic cystitis is dull and thickened. The blood vessels are not seen at the fundus and there is often atrophic retraction of the ureteral orifices. This process is usually accompanied by more or less irritating hypertrophic trigonitis. This condition is the most common cause of frequency of urination in women past the menopause and is not easy to cure.

Inflammation of the bladder is usually affected by congestion of adjacent organs. Thus an endocervicitis with enlargement of the cervix is a not infrequent accompaniment of a congestive hypertropic trigonitis. The intimate relations of the cervix and trigone explain this association. The enlarged cervix also often presses upon the trigone which from the existing inflammation has lost its normal elasticity and this will often cause alteration in the structure and appearance of the ureteral orifices, so that from being small elevated papillae, they become stretched, flattened and elon-

gated. A similar condition is sometimes caused by the enlarged cervix of pregnancy.

Tuberculous cystitis can be readily recognized cystoscopically if the little gray white tubercles can be seen: but after they have broken down and become ulcerated, it is more difficult to diagnose this condition cystoscopically. In the study of sedimented urine for tubercle bacilli, Ellerman and Erlandsen's method of sputum examination is of distinct value. This consists of the addition of half a volume of 0.6 per cent. sodium carbonate to the sediment and digestion for twenty-four hours. The supernatant fluid is poured off and four volumes of 0.25 per cent. sodium hydroxide is added. After careful agitating, it is brought to boiling point—then centrifugated again. This increases the chance of finding the tubercle bacilli many times. Centrifugation must be long and rapid.

No results were obtained with Rovsing's 5 per cent. carbolic acid irrigations in tuberculous cystitis except a great deal of bladder pain.

The appearance of ulceration around the orifice of a ureter is always suggestive of infection of the kidney upon that side. This is true of chronic kidney infections, such as tuberculosis of the kidney where there has been irritation of that orifice for a long time.

The treatment of these cases of cystitis has consisted of irrigations of a bland cleansing fluid. This solution usually consisted of sodium bicarbonate, one dram to the quart. This is a better solvent of mucus, pus, and albuminous substances generally than is the boric acid solution so commonly used. This is well known by otologists, who recognized the value of alkaline solutions in suppurative ear diseases. If there was a great deal of mucus, the solution was made of double strength, and, if there was a great deal of pus, one dram of sodium sulphate was added to the cleansing solution. These mixtures are bland and cleasing, and offer some advantage over the common boric acid solution.

Various antiseptic solutions were tried in the hope of finding one which would give the maximum of effect with the minimum of disturbance. It should be remembered in the treatment of cystitis that it is only in the stage of purulent cystitis that germicides are of value. The infective organism which started the process has little action in keeping up the tissue changes. The deep infiltrations and cell changes continue with the chronic irritation of the ever present urine.

The best results were obtained with quinine bisulphate from 1-3000 to 1-1000. This is a germicide of great value and is comparatively unirritating. It was used constantly as a medium for bladder dilatation in ureteral catheterization. It should be begun in the weaker strength. Antipyrin 1-100 is another useful irrigation in chronic trigonitis.

Various silver salts have been tried. The various colloidal silver salts were not used as Derby found that of these preparations argyrol and collargol are inert as bactericides and that all the colloid silver salts are inefficient in the presence of albuminous matter. The preparations may be divided into two classes: the non-irritating of low bactericidal power as argyrol and collargol and the more effective and slightly irritating bactericides as protargal.[1] Protargol 5% was used sometimes.

However, it was found that silver nitrate was the most efficient and that the less

[1]Derby, Boston. *Med. and Surg. Jour.*, 1906, Sept. 27.

amount of irritation from the newer silver salts depended upon their weakness and slow action. Silver nitrate gives as good results if the solution is fresh and weak (0.5 per cent.) and the viscosity of the solution is increased in order to obtain slowness of action. This may be done by adding glycerine 20% or other substances which do not neutralize the silver nitrate.

In acute purulent cystitis with exfoliation and pus formation, the colloid silver salts were used with hydrogen peroxide as a cleaning and antiseptic combination. It has been shown that in the treatment of necrotic endometritis and suppurating wounds, if a colloid silver compound is used along with hydrogen peroxide, the action of each is made much more effective. For this reason the two were combined in the treatment of purulent cystitis. Hydrogen peroxide, one-third strength, and protargol, 5 per cent., were injected alternately through a catheter into the bladder by means of a half-ounce syringe. The mixture was allowed to act for a few minutes, then it was washed out by the cleansing solution, injected by the same syringe. No difficulty or trouble was ever noted from distention of the bladder by the peroxide. The peroxide foam poured out of the catheter and was finally washed out by the quinine solution or the cleansing solution. This treatment is not one which would be advised for cystitis in the male, but it has given excellent results in purulent cystitis in the female.

The exfoliation, desquamation, and pus cells are in this way washed away, as they cannot be by any irrigation; the bladder mucous membrane is left clean, and is prepared for treatment by antiseptic or astringent solutions or for direct applications.

For direct applications to ulcers and localized inflamed spots, nitrate of silver fused on a metal probe, or protargol solution on a swab, was used. The patient was put in the knee-chest position, and applications were made through the Garceau cystoscope. The place for the application was first located by means of the examining cystoscope under water dilatation. If an application of a solution is required, it will be found useful to dip the end of the probe into collodion in order to make the cotton stick closely.

It was also found that in cases of acute cystitis, or cases where there had been extensive treatment, a soothing application was of benefit. Olive oil was used with some success, but finally a preparation of Irish moss was found to be the most useful. The value of this preparation consists in keeping the bladder walls apart and lubricating them, so that no friction or irritation results. The preparation is approximately the same as many lubricating jellies put up in tubes for use in vaginal examination. This soothing lubricating preparation of Irish moss is also of use in lubricating the cystoscope before its introduction into the urethra. It is prepared as follows:

Chrondus (Irish moss) 45 g.
Distilled water .....1500 c. c.

Wash the Irish moss in cold water, drain off water; wash again and drain. To the washed Irish moss add 1,500 c. c. of distilled water and boil for ten or fifteen minutes, stirring frequently. Strain through muslin with expression. To the strained Irish moss add 4,500 c. c. of boiling distilled water and filter. The process of filtration may be hastened by loosely filling the filter with absorbent cotton. Evaporate the filtrate to one-fifth by bulk, cool partially and add gomonal, 1 per cent. by weight, mix well and strain through fine white flannel which has been previously boiled. Bottle in ground glass stoppered containers of about half a pint each.

This Irish moss jelly makes a useful lubricant for examinations and may be put

up in sterilized metal paint tubes for that purpose. In bladder treatment the jelly should be diluted with hot water to a thick semisolid consistency, fit for use in a syringe.

The treatment of these cases of cystitis consisted mainly in the use of four compounds: the antiseptic quinine solution, the cleansing bicarbonate solution, the peroxide and silver combination, and the jelly of Irish moss. In addition to this, appropriate treatment was directed to ulcers by direct application of silver or curettage, as was required; chronic patches of inflammation were stimulated, and lesions in the neighboring organs were treated.

If the case was one of acute purulent bladder disease, the bladder was first inspected and a diagnosis made, the bicarbonate solution being used as the dilating fluid. The pus and shreds were then washed away by the peroxide and silver combination. The bladder was then washed and dilated by the quinine solution and more exact examination made for small ulcers, patches of inflammation, and the condition of the ureteral orifices. If it were necessary to catheterize the uterus, it was usually done under the quinine solution and after the bladder had been cleansed. It was believed that in this way danger of carrying infection upwards from the bladder was eliminated, the cleansed bladder wall and antiseptic quinine solution removing this small danger. The quinine solution gives a peculiar bluish appearance through the cystoscope, but examinations can be well made with it.

If the case is one of very acute irritation, the Irish moss jelly is injected on removal of the quinine solution. The amount of jelly injected should vary from one to four ounces. If, however, the bladder inflammation is more chronic, the patient is told to retain the quinine solution as long as possible in order to get full benefit from its antiseptic and astringent action.

In chronic cases with much congestion and irritation the peroxide and silver combination was seldom used. The aim of the treatment in all cases was first to cleanse the infected area, to direct appropriate treatment toward the special lesion, and to exercise an antiseptic astringent and stimulating action upon the mucous membranes by means of the quinine solution.

It was also found useful to use various drugs by the mouth. Infusion of buchu and fluid extract of triticum are old favorites and have no equals for making the urine bland and unirritating. Tincture of belladonna, or hyoscyamus and potassium citrate or sodium bicarbonate should be used in combination to relieve spasm and make the urine alkaline. It is required in cases of cystitis that the urine be made alkaline during the irritating stage of the disease. Acid urine is always irritating. The patient should also be directed to drink large quantities of water and a specified amount of six glasses should be named in order that the directions be carried out. Aspirin is a drug which is sometimes of use to relieve irritation; when hexamethylentetramin is used, it should be combined with an equal amount of sodium benzoate to relieve the kidney irritation which it may cause.

As the bladder is getting better, great gentleness should be used in treatment and in catheterization of the urethra as described in another article upon the prevention of catheter cystitis. Otherwise the patient may recover from her cystitis and have still

to recover from the treatment. The injury caused by the passage of a catheter may induce a urethritis. The last few treatments should be of a bland solution.

These methods have been in use for nine years in my hands and, in spite of the experimental trial of scores of other astringents and germicides, the cheap efficient substances have given me good results.

CHAPTER III.

THE TREATMENT OF LEUCORRHEA DUE TO GONOCOCCUS INFECTION.

General Considerations.—Leucorrhea, white or purulent discharge, is one of the commonest symptoms of gonoccus infection and its treatment is essentially the treatment of that infection, except in salpingitis. Not every case of leucorrhea by any manner of means is due to this infection, but leucorrhea is almost constantly found in gonococcus infection of the cervix and vulva.

The great prevalence of this form of disease in men and women makes its consideration of greatest social and economical importance. The frequency of its occurrence in the community there is no means of knowing; Zweifel and Sanger claimed that about 18 per cent. of all women have gonorrhea.[1] This may be excessive, but in any case it is suggestive of the fearful prevalence of the disease.

It was formerly taught that this infection in women was practically incurable. One professor of gynecology has stated that it were better that a millstone be tied around her neck and she be cast into the sea than that a woman should have gonorrheal infection. This pessimistic belief and teaching is responsible for the lack of treatment and investigation of the disease, and it is misleading and untrue. Gonococcus infection not only can be cured, but often is cured before it advances to salpingitis, and while the disease is still confined to the cervix and vulva. This is the stage in which local medical treatment should be applied and the stage in which the chances of cure are greatest.

Pathology.—To properly administer the treatment, the course and pathology of the disease should be understood. The disease is usually thought to be an endometritis, but there is usually no infection of the interior of the uterus save in the early acute stages, in the puerperium, or sometimes after menstruation in the early stages of the disease. The distribution of the infection, extending as it does by means of the continuity of the mucosa, is dependent upon the character and kind of mucous membrane. It readily attacks and thrives in glandular structures and unstratified epithelium. For this reason the common sites of inflammation are Skene's glands in the urethra, the vulvo-vaginal glands and the glands of the cervix. The walls of the vagina and the uterus are not usually involved, although they may be in the acute stages or when their tissue is changed or softened, as in the puerperium. The discharge which apparently comes from the uterus, is really cervical and originates from the interior of the cervix below the internal os. The cervical glands are present two-thirds or more of the way up the cervical canal.

The usual point of greatest involvement is in the duct of the glands. The inflamma-

[1]Sanger: Verhandl. d. deutsch. Gesellsch., 1886, I, 177.

tion here blocks up the outlet of the gland with the result that often small cystic collections accumulate. If the gland is not blocked, there is a purulent discharge from it. This discharge usually becomes worse after the cessation of the menstruation, when there is usually a slight exacerbation of the disease. The cervix becomes enlarged, often nodular from cystic collections and indurated. This is due to the products of inflammatory disease and principally plasma cells and lymphocytes. The presence of an exceptionally large number of plasma cells macroscopically is almost characteristic of gonorrheal cervical infection. The exudate contains a large number of polymorphonuclear leukocytes, which are present immediately below the epithelium. There are also seen numbers of deeply staining basophilic granular irregular minute bodies, the so-called Fleming's bodies. There are also sometimes seen in the submucosa a few hyaline pink-staining bodies varying in size from one to six times the diameter of a plasma cell. The microscopic appearance of the tissue suggests that the lesions are the result of periodical exacerbations and remissions of the inflammation which has spread and lights up again and again from the mucous surface.

Diagnosis.— The diagnosis is often very difficult. The history of an attack of frequency of urination and discharge is of most value. This discharge is usually worse after a menstrual period. Inflammation of the trigone of the bladder is common. The inflammation may be noted in the red orifices of the vulvo-vaginal glands, sometimes in the urethral glands and in the thickened inflamed indurated cervix. If examination takes place soon after a menstruation, the reddened spots are more easily seen.

The microscopic examination of the discharge offers some evidence. There are usually in simple leucorrhea, numerous flat epithelial cells, which stain well with disintegrated cellules with proliferating nuclei and lymphocytes with numerous cocci, Doderlein's or other bacteria. In gonococcus infection, on the contrary, there are few flat normal vaginal cells, many disintegrated or degenerating epithelial cells, numerous polymorphonuclear leukocytes with often the characteristic biscuit-shaped organisms often intracellular. The appearance of the organism must be very characteristic, before the diagnosis can be made, as the vagina often harbors cocci both Gram-positive and Gram-negative, which are very like the gonococcus. The gonococcus is also often absent in the first stages of the infection.

The exact diagnosis of the disease must depend upon cultural methods, although it is usually easy to reach a presumptive diagnosis without them. Cultures taken from the cervical discharge usually give poor results, as the microorganisms are often dead. Sometimes during an exacerbation, as after menstruation, a growth may be got from the discharge, but better results are obtained from swabs taken by rubbing the sterile cotton on a stick like diphtheria tubes directly over the infected mucous surface. In this way, organisms are obtained directly from the tissues where they grow. This should be done, if possible, about two days after menstruation ceases. The culture media should be hemoglobin agar, such as described in my article upon puerperal gonococcus infection.

Course and Prognosis.—The chronic course of the disease is due to certain influences which affect it adversely. The factors which excite the disease and cause

its extension and continuance are (1) repeated fresh infections, (2) coitus, (3) menstruation, (4) pregnancy, (5) sharp curettage and (6) tamponage. When it is considered how often all these occur, it is no wonder the disease is considered difficult to cure.

The repeated fresh infections, if from the husband, are usually explained by fresh or chronic old infection; although Erb thinks that our estimates of this have been exaggerated and that, of 2,400 male patients, who had had gonorrhea, only 4.5 per cent. infected their wives.[1] But in any case, this should be considered.

Treatment.— Menstruation, pregnancy, and coitus, all do harm from the addition of congestion and distribution of the infection. During menstruation and for three days after, the patient should remain very quiet and take all the rest possible, in order to limit the extension of the disease. After pregnancy, the tendency is for the disease to extend, as is described in the article on puerperal gonococcus infection. Coitus should be restricted during the acute stages and not allowed until the cervix appears normal.

Sharp curettage of the uterus does harm, because it bares a raw surface which is not infected and causes infection in an area not previously involved. The gonococcus can find no permanent hold in the uterine mucosa, provided it is not injured, but after curettage or after pregnancy, the raw surface and exudation, as a result of the inflammation caused by the trauma, offer a fine nidus and a good culture medium for the extension of the gonococcus. It is true that the endometrium usually recovers, but in the meantime an opportunity has been given for extension of the disease to the Fallopian tubes with its attendant dangers and discomforts. This upward tendency also exists after pregnancy. Why sharp curettage should ever be advised in this disease or for leucorrhea is impossible to explain. It injures the only uninvolved part and does no good but actual harm. It is like shooting the innocent bystander in a street brawl. An example of this is a report of six cases, reported by Holden,[1] which were curetted and the pelvic organs noted as "apparently normal," but returned some time afterwards and had their Fallopian tubes excised for purulent salpingitis.

But the whole treatment of the disease has been based upon empiricism and a false idea of the pathological anatomy. Another hoary myth is the belief that the introduction of tampons does good. Why should they? The essential points in the treatment of the condition must be lack of congestion and irritation, rest and free drainage, with proper germicidal measures. The tampon is an irritative foreign body which obstructs drainage and macerates the mucosa, so that extension of the infection is more likely and occlusion of the ducts of the glands more easy. If any antiseptic is introduced with it, the continued application is irritating, as for example, ichthyol-glycerine tampons with which almost every one has had the experience of getting a fine cast of the vagina. It has the effect of a moist glycerine dressing. Let any one experiment with a moist glycerine dressing upon one of his own mucous surfaces and he will find what irritation and maceration it produces. So influenced was I by custom and previous practice that I introduced

[1]Erb: *Münch. med. Wochens.*, 1906, 27. *Münch. med. Wochens.*, 1907, 31.

[1]Holden: *American Medicine*, 1905, Nov. 4.

several thousand tampons before I was convinced of their harm and uselessness. Such is the influence of tradition. I tamponed with all mixtures and shades and percentages of glycerine, ichthyol, boric acid, chloral and such. I tamponed one woman with gonococcus infection twice a week for two years, at the end of which time she was worse than in the beginning, and the disease had extended to the tubes. But it had a great psychic influence—but none on the disease. The facts are that nobody actually knows what good tampons do, save in prolapse or retroversion; but it is something to do, and many things are done, because it makes the physician and patient feel something is being done for the disease. It will go the way of intrauterine applications to oblivion.

The essentials in the treatment are free drainage and germicidal applications and douches. The infection lurks in the glands of the cervix and upon the mucosa. The indication is to drain the obstructed glands and apply real germicides to the mucosa.

The drainage of the obstructed glands is best obtained by the electric thermocautery. A small narrow wire loop point should be used about the breadth of the lead of an ordinary pencil. The cauterization is best done in the middle of the menstrual month and should be preceded by germicidal douches. With a bivalve speculum exposing the cervix, the small cautery at a red heat is thrust into each eminence and cystic collection in the indurated and inflamed cervix. It is also thrust about ⅛ inch into places in the cervix where it seems most indurated and inflamed. In all, about 10-20 punctures with the cautery may be done at one sitting. A month should elapse between cauterizations. This treatment opens the glands and destroys collections and relieves congestion, so that the cervical circulation may take care of the infection. It seldom needs to be done more than three times, unless there is continued reinfection. The patient should keep quiet after the treatment for two days and should be warned that the discharge is apt to increase at first. This treatment is not needed more than once in most cases. It is not painful, it does no harm and may even be done in the presence of salpingitis. It is, however, most applicable to the chronic or subacute stages of the disease. In the acute stages, rest and proper douching are the chief indications.

In addition to this treatment, applications of germicides are made to the cervix and the infected glands of the vulva and urethra. The cervix is swabbed and the glands of the vulva are probed. Several germicides may be used.

Tincture of iodine is an old favorite. This has a Rideal-Walker carbolic acid coefficient of 2, that is, it is twice as germicidal as pure carbolic acid. Chlor-meta-kresol is a halogen compound which makes a useful applicant. This, in the 50 per cent. oily solution, has a Rideal-Walker carbolic acid coefficient of 11.5. It is a useful application and causes little pain. The oily solution has an advantage of continued slow action.

This substance is also useful to give in douches in 1-1000 of the oily fifty per cent. solution. It can be afterwards increased to 1-500. Occasionally it causes tingling, but is non-toxic and only slightly affected by albuminous fluids and is perfectly harmless to the mucosa. Its high germicidal action makes it of use. After the discharge begins to lessen and all the cauterizations

have healed, it is best to use a plain alkaline douche of soda bicarb. ʒii, sod. sulphat. ʒii to 2 quarts of warm water.

The use of bichloride of mercury and formalin douches are illogical in this condition. Bichloride in the presence of organic tissue, such as mucosa, or albuminous discharges, become inert. The leucorrheal discharge neutralizes it, so that the action of the douche is only mechanical and not germicidal—another illusion of which the treatment of this disease has been made up.

Precautions should be taken in regard to rest at the menstruation, care of the bowels and general health, prevention of reinfection, etc. But the active treatment of the disease should be confined to the cautery, douches of real germicidal value and occasional local applications of a germicide. In this way, rest, drainage and cleanliness are obtained, and the disease may be cured and the extension to the Fallopian tubes prevented. It is only our inefficient and illogical methods which have made this disease appear hard to cure.

CHAPTER IV.

THE TREATMENT OF FIBROID TUMORS, WITH REPORT OF 700 CASES.

The study of uterine fibroids has a direct bearing upon their treatment. If these growths cause no more trouble than uterine hemorrhage, their treatment may be decided upon after consideration of how severe is the hemorrhage: but if there are other dangers, then the treatment must be chosen after consideration not only of the present symptoms, but also of the probable changes which may occur in the tumor and their danger to life.

With the hope of being able to obtain some idea of the degenerations and the relation of malignant changes, 700 tumors were studied. In any such series it is of importance that it should be carefully done and all tumors should be examined microscopically. It has been thought best not to combine with this series any others as a single series of such numbers is of more value than an aggregation of cases unevenly prepared and collected from many operators. The cases have been studied from the point of view of age and its relation to cancerous changes and degenerations and the tables tell their own tale.

TABULAR ANALYSIS OF AGE, COMPLICATIONS AND DEGENERATIONS OF 700 FIBROID TUMORS.

TABLE 1. CHARACTER OF TUMORS.

	No.	%
Single	238	34
Multiple	462	66
Small, up to 4 c. m.	257	36.7
Medium, 4-8 c. m.	209	29.8
Large, above 8 c. m.	234	33.5
Subserous	136	19.5
Interstitial	190	27.1
Submucous	75	10.7
Combined	299	42.7

TABLE 2. DEGENERATIONS AND MALIGNANT CHANGES.

(A.) *Degenerations of Tumor.*

	No.	%
Hyaline	127	18
Calcareous	65	9
Cystic	20	3
Hemorrhagic	14	2
Necrotic	57	8
Adenomyoma	23	3

(B.) *Associated Malignant Changes.*

	No.	%
Adenocarcinoma	20	2.9
Squamous carcinoma	6	0.8
Sarcoma	7	1
Chorioepithelioma malignum	2	0.3
Total malignant changes	35	5

TABLE 3. COMPLICATIONS OF TUMORS.

	No.	%
Ovarian cysts	53	7.5
Cystic ovaries	141	20
Ovarian fibroma	8	
Ovarian carcinoma	5	
Salpingitis	194	27.5
Appendicitis or Periappendicitis	148	21

TABLE 4. AGE OF PATIENT.

Age	No.	%	Age	No.	%
20-30	19	2.7	50-60	95	13
30-40	233	33	60-70	21	3
40-50	332				

TABLE 5. RELATION OF AGE TO DEGENERATIONS.

(A.) *Necrosis.*

Age.	%
20-30	5
30-40	7.7
40-50	7.5
50-60	9.3
60-70	29

(B.) *Calcareous Degeneration.*

Age.	%
20-30	0
30-40	2
40-50	16
50-60	14
60-70	10

(C.) *Hyaline Degeneration.*

Age.	%
20-30	11
30-40	11.5
40-50	16.8
50-60	16.6
60-70	10

(D.) *Adenocarcinoma.*

Age.	%
20-30	0
30-40	0
40-50	3.6
50-60	6.3
60-70	9.5

(E.) *Squamous Carcinoma.*

Age	%
20-30	0
30-40	0.4
40-50	0.3
50-60	3
60-70	4.6

(F.) *Sarcoma.*

Age.	%
20-30	0
30-40	0
40-50	0.6
50-60	3
60-70	9.5

(G.) *Chorioepithelioma.*

Age.	%
20-30	0
30-40	0
40-50	0.6
50-60	0
60-70	0

(H.) *Total Malignant Tumors.*

Age.	%
20-30	0
30-40	0
40-50	5
50-60	12.7
60-70	23.8

Autopsies 26
Heart Lesions at Autopsy 11.5

A consideration of this table shows that the older a patient the more danger from the fibroid tumor. The older the patient the greater probability there is of malignant changes and other dangerous degeneration, such as necrosis. This shows that the menopause does not relieve the patient from danger from fibroids save from the hemorrhage. Other and more dangerous complications remain and increase in degree with each succeeding year.

The menopause, which does not come until the average of 48 years in normal women, according to Norris' study, is commonly delayed longer in women with fibroid tumors on account of the additional congestive irritation and blood supply of the tumors in the uterus. So that it is not fair to advise a woman with a fibroid tumor to wait until 45 years for a menopause which does not come until 50 years, and does not cure when it does arrive, but brings greater dangers with it. Operation at the time of election must be the treatment of fibroid tumors instead of temporary conservative treatment and operation of urgency with a large mortality when dangerous symptoms or malignant complications intervene.

Malignant change took place in 5 percent. of all tumors. Adenocarcinoma of the fundus formed the greatest part of these changes. This form of cancer, as pointed out by me in 1904, has some predilection for fibroid tumors, as it is by far the most common form of malignant association. Fundal cancer, usually in other cases than fibroids, is found about one-sixth as frequently as squamous carcinoma of the cervix, while with fibroids the first is found more than three times more frequently than the second.

Apart from malignancy, necrosis is present in 8 percent, and this percentage increases with age. Necrosis must increase the mortality at operation, and cannot exist long without bacterial contamination. Other complications, such as changes in the adjacent viscera, salpingitis, appendicitis, etc., make up a list which every physician who advises against operation in fibroid tumors should view with appreciative alarm.

The dangers from fibroids in patients more than 40 years are much greater than before this time. If operation is done before grave complications intervene, the operation may be one of choice and with a low mortality, but when necroses,

malignant changes or hemorrhage compel operative measures in a weakened patient, the mortality is large.

The consideration, therefore, of this series of fibroid tumors warrants the following conclusions.

1. The menopause does not bring a cure to fibroids; on the contrary, increasing age increases the danger from these growths.

2. There is little danger of malignancy arising in fibroids before the fortieth year of the patient, after which time the danger increases with each year.

3. In view of the sarcomatous changes, carcinomatous associations and other degenerations of uterine fibromyomas, early removal is indicated when they are of sufficient size to produce symptoms and cause the patients to seek advice. Small uncomplicated fibroids in young women do not require early treatment.

4. Thorough pathologic examination should be made of all fibroids for evidence of malignancy. The tumor should be opened at the time of operation and examined for adenocarcinoma or sarcoma. Particular study should be devoted to those tumors which are necrotic, cystic, or both, as among these are found the largest proportion of malignant changes.

5. In view of the large percentage of inflammatory changes in the Fallopian tubes and appendix, these should be examined at the time of operation and removed, if diseased.

Previous papers on fibroid tumors:
Ellice McDonald, M. D.

1. Uterine fibromyomata, 700 cases. *Jour. of Obs. and Gyn. for the Brit. Empire.* 1909, Aug.

2. Fibromyoma of the uterus complicated by cancer or sarcoma, 35 cases. *Jour. Amer. Med. Ass'n.* 1908, Mch. 20.

3. Complication and degeneration of uterine fibromyomata, 280 cases. *Jour. Amer. Med. Ass'n.* 1904, May 26.

CHAPTER V.

A NEW OBSTETRICAL FORCEPS.

Introduction.—Since the time of the Chamberlains, there has not been any very great advance in design of obstetrical forceps. Except for the addition of the pelvic curve, the improvements have all been made in the manufacture and not in the design. Tarnier's axis traction principle was, it is true, a new one, but it is doubtful whether the effect the axis traction forceps was made to attain—traction in the direction of the axis of the pelvis—cannot better be obtained by forceps without the axis traction mechanism. In other words, with a properly designed pair of forceps, if traction in direction of the axis of the pelvis cannot be obtained, it is because the operator does not know the axis of the pelvis and how to pull in it.

The chief model upon which most modern forceps have been designed is the Simpson model of which the Elliott forceps is the best type. This forceps depends for its traction upon one cross piece at the end of the forceps (see illustration) for its traction. Were this cross piece removed and the forceps to consist only of a fork there would be no possibility of traction at all. In other words, the fenestrated forceps of the Simpson and Elliott type depend for their traction upon a friction grip which is concentrated in one part of the forceps—the cross bar at the end.

As a result of this localization of the pressure and friction in one part, the forceps must be narrow within the points to ensure firmness of grip. All forceps, when judged, should be examined in the position in which they would be on the child's head—i. e., with their largest meas-

urement of separation where the biparietal diameter would come. The ideal of forceps application is over the biparietal eminences. The average biparietal diameter is 9¼ centimeters. From measurements, lead tape moulds and casts of over a hundred fetal heads, I have found that when the forceps are over an average biparietal diameter, the tips must be separated at least 5½ c. m. If they are separated less than this they cause too much pressure over the stylomastoid process and the tender facial nerve. The surest way to pass an opinion on a pair of forceps is to open them to 9¼ c. m. and measure the tips. A proof of the correctness of this assertion is that three investigators—Tarnier, Elliott and myself—have independently come to the conclusion that with the average sized head, the forceps tips should be separated 5½ c. m. for all three designs have this measurement. If the tips are narrower than this, undue pressure comes over the facial nerve with consequent increase in facial paralysis.

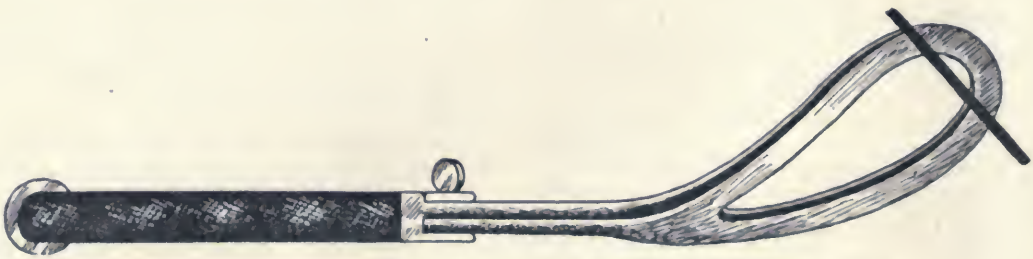


Fig. 1. Elliott forceps—showing traction bar beyond the black mark.

While the Tarnier and the Elliott have the same proportion in this measurement, on account of the pressure and friction traction being isolated at one point, the blades have to be longer than is necessary with my forceps.

With the long blades of the fenestrated forceps of the Simpson type, there is more danger of cutting off ears, getting forceps' scars, fracture of the skull, gouging out eyes, causing facial paralysis, and all the other blood-thirsty and horrible things that forceps can cause. In addition, the Simpson type forceps, because of their length, may cause injury to the mother. When the traction is in an upward direction, as it must be before the head is delivered manually, the long blades which grasp the head over the biparietal processes pivot upon these processes, and the tips of the blades, projecting beyond the head, impinge upon the pelvic floor and around the vaginal mucous membrane (Fig. 2). This may begin a perineal laceration, as, when the continuity of the mucous membrane is once broken, the stretching of the descending head causes small laceration to increase in extent just as a small tear in a piece of cotton will readily extend. This is shown in a study of perineal lacerations (McDonald, Lacerations of the Perineum, *Surgery Gyn. and Obst.*, Jan., 1908) in which it was shown that, under these circumstances, the muscles split along the lines of cleavage after the mucous membrane and fascia was once ruptured.

If the fenestrated blades are made shorter than the Elliott, they won't hold unless undue pressure is made. The Elliott forceps is the best design of its type as is attested by thousands in use, but it has the

defects of its type—pressure localized in one spot, blades too long and too broad. This makes the forceps difficult to apply and often causes injury to the mother. The operation of rotation of the head by forceps from R. O. P. is difficult with the Simpson type forceps.

Another type of forceps of a good character is the solid blade forceps, of which the Tucker-McLane forceps is the best model. These forceps have the advantage of distribution of friction-pressure and convenience from their narrowness of blade.

As a result of the broad flat smooth surface of the blade which is applied to the head, the friction-pressure is not great. On this account the blades must be made long and the points come close together so that they will hold. For this reason, the disadvantages of this type of forceps is the length of blade and the closeness of the tips. These forceps are very nice in an easy forceps operation with a normal head, but with a large head and a hard forceps operation they will slip, or else so much pressure must be made as to endanger the child.

Description.— With the idea of remedying these defects and including the advantages of both the Elliott and the Tucker-McLane forceps, I have devised a pair of forceps, which have as their basis a solid blade into which a number of slits, windows or fenestrae are cut. The blades are shorter than either of the other models and the width between the tips the same as the Elliott.

Fig. 2. Elliott forceps—showing extension beyond the head to wound the mucous membrane of the vagina.

The multiple fenestrae do not detract from the strength of the forceps nor from the ease of application. The principle is of distribution of pressure and traction by several friction points instead of one as the Elliott or a smooth surface as the solid bladed Tucker-McLane. The principle is that of the non-skid automobile tire where there are numerous friction ridges or of the non-slipping eye-glass clips where instead of one bar on the side of the nose, there are two or several. It is the prin-

ciple that two points of contact can make more pressure friction than one.

As a result of this non-slipping quality, there can be certain changes in the blade which are desirable. The blades may be shorter so as not to pinch the cord, not to make too much pressure low down over the facial nerve, to make them easy to apply, to make them easy to remove, to make the operation of rotation of the head from R. O. P. a simple one. They do not extend beyond the head and cause tears. They do not slip. They do not cause forceps scars because the pressure and friction are well distributed. If the forceps scar of an Elliott forceps is examined, it will always be found to be caused by the cross bar. The semi-fenestrated forceps will not cut off any ears nor are they likely to cause facial paralysis. They are designed to include the best qualities of the fenestrated and the solid blade forceps.

They have been in use with the multiple fenestrae since 1905. I have had nothing but good reports from them. The shortness and narrowness of blade makes it so easy to apply them that they may be more often applied to the sides of the head than other forceps. The more applications over the biparietal eminences, the place forceps were meant to be applied, the more successful the operations.

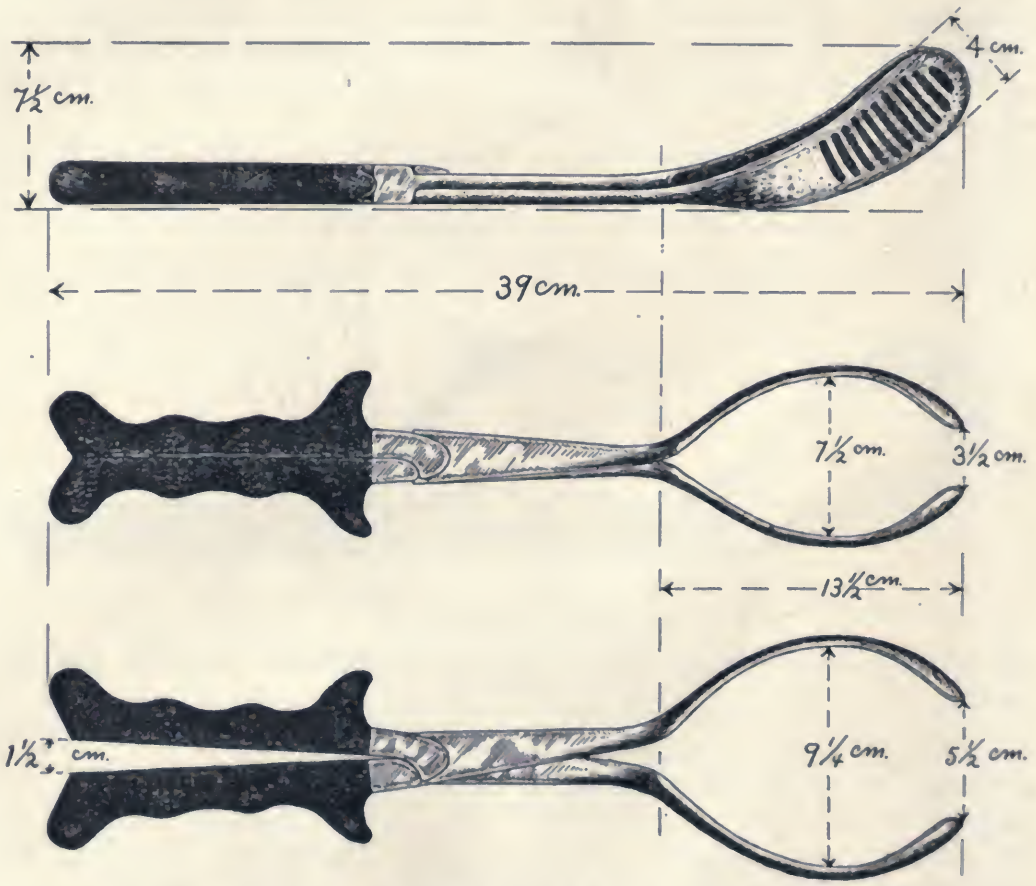


Fig. 3. Author's semi-fenestrated forceps with multiple traction bars.

CHAPTER VI.

STERILIZATION OF THE SKIN.

Introduction.—Sterilization of the skin before operation is a problem which was not solved by Grossisch's tincture of iodine method. This, although a great advance, has the disadvantage of not being a good fat solvent and causing considerable irritation. The tincture of iodine method has another disadvantage in that it must be applied by painting with the result that the aid of the mechanical effect of rubbing and scrubbing is not obtained as an aid to the penetration of the antiseptic. Of one hundred and thirteen surgeons at the German Surgical Congress, twenty-eight complained of the eczema following the tincture of iodine method. This irritation is due to the fact that the iodine method is supplemented by other mechanical methods as the tincture cannot be rubbed in. Almost all the surgeons reduced the strength of the tincture to 5 percent.

Description of Author's Method.—In order to obviate the disadvantages of the tincture of iodine solution I have used the following solution for four years, and have already reported results[1].

Author's solution:

Iodine 2%

Carbon tetrachloride 98%

This solution has all the advantages of the tincture without the disadvantages, and may be applied without previous washing. The longer application makes up for the weaker solution. The solution is rubbed with a piece of gauze over the skin for two minutes after the part has been shaved upon the table or the night previously.

The solution is not explosive, non-irritating, and cheap. Carbon tetrachloride is a heavy colorless liquid not unlike chloroform. It has itself considerable germicidal value and is a fat solvent. It is advertised under a trade name as a popular

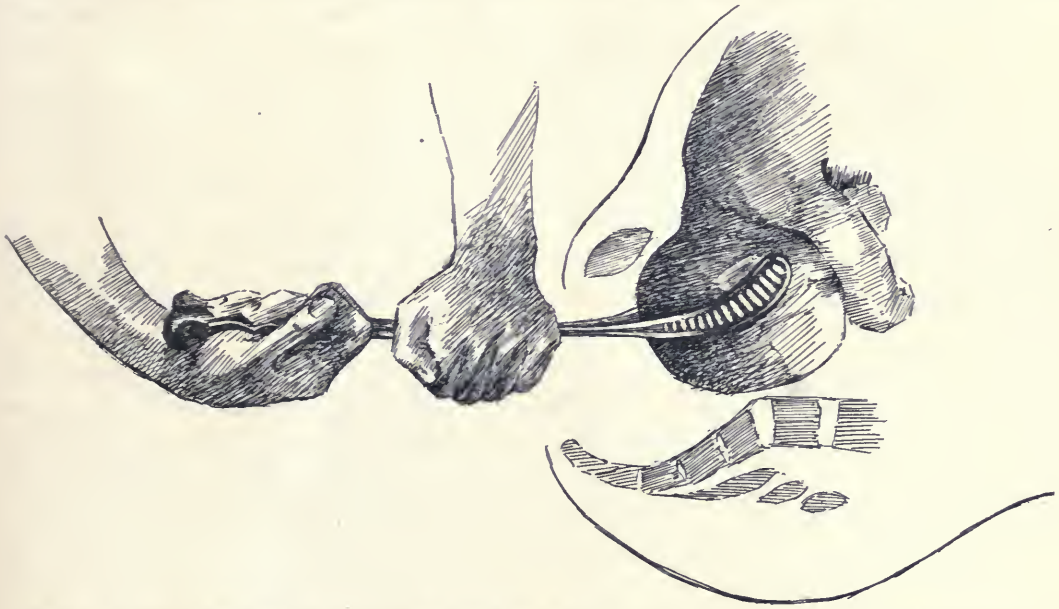


Fig. 4. Author's method of producing traction in the direction of the pelvic axis and modified Pajor's maneuvre.

[1]McDonald, Ellice: Sterilization of the Skin. *Med. Rec.*, 1911, Apr. 15.

non-explosive cleansing fluid for clothes.

The solution has the advantage of being a fat solvent, of being non-inflammable, of being not irritating, and the skin may be scrubbed with it so that all the benefit of mechanical cleansing may be obtained.

No other method need be combined with it. Bichloride with iodine solutions forms an irritating mixture. All iodine solutions should be prepared fairly fresh—not more than three weeks old. The stains of iodine may be removed by sodium hyposulphite (thiosulphate).

Whatever solution is used for skin sterilization, it must be a fat solvent. If a solution does not dissolve fat, there can be no hope of its penetration into the mouths of the sweat glands and the recesses of the skin. A globule of fat may prevent the penetration of the antiseptic and conceal bacteria which later manipulation and excretion may expose. It is also necessary for the same reason that every skin germicidal solution should be capable of being rubbed into the skin, so that the mechanical manipulation may break down any barrier of fat, perspiration or other detritus and allow the chemical action of the germicide full play.

According to Beekman[1] at the Mayo Clinic, Bastionelli's method is used, iodine in benzine 1-1000 (Heusner's solution) followed by three and one-half percent tincture of iodine painted on the skin. My solution has the advantage of combining these two processes into one, and has a high germicidal value as the carbon tetrachloride is more germicidal than benzine, or alcohol, and much less irritating than benzine. Heusner himself, the author of the benzine solution has added paraffin to it in order to reduce the irritating qualities.

[1]Beekman: *Interstate Medical Journal*, 1912.

CHAPTER VII.

PREPARATION OF CATGUT LIGATURES.

Good ligatures are one of the first requisites of good surgery. The ideal ligature should be strong, sterile and soft. Catgut has up to the present time proven itself to be the most applicable for surgical purposes. The problem in the preparation of catgut is to ensure sterility without a loss of strength and pliability.

The catgut is rawhide tissue or untanned leather, and like all such material will swell in size on the addition of water, or a water bearing solution, such as alcohol. The catgut being animal tissue also contains fat, and it is essential for sterility that this fat be removed as unless this is done the fat may harbor bacteria and so cause contamination. For this reason the sterilizing solution must be a fat solvent. The gut must remain the same size as before sterilization and not increased in size as is done by alcohol or alcohol bearing solutions—so that when the gut dries it becomes hard and stiff, and while wet is slippery and inelastic.

After considerable experimentation the following process has been adopted. It was published two years ago, and since then continuous experiment has not altered the method. I have had good reports from a number of hospitals about the method.

In order to completely obviate any faint possibility of tetanus contamination, it is well to sterilize the catgut in gross as it comes from the maker by cooking in paraffin oil at 212°-240° for half an hour. Care should be taken not to run the temperatures too high as it makes the gut brittle. It should be cooked upon a sand bath and the gut should be suspended in the oil so that none touches the sides of the vessel.

The gut in 100 ft. rolls may be cooked and then taken out and cut into desired lengths or stored before placing in the iodine-acetone solution.

Wide mouth jars with ground glass tops or preserve jars may be used for the preparation of the gut. My custom is to cut the gut into 30 inch strands and roll 4 strands together in rolls of a diameter of about 2 inches, wrapping the ends four times around. In this way the total amount for a laparotomy may be easily placed in one small jar and much handling avoided.

AUTHOR'S METHOD.

1. Cook in paraffin.
2. Iodine, 3 per cent
   Acetone (commercial), 97 per cent.
   for 8 days.
3. Acetone, 100 per cent., 8 days.
4. Preserving solution:
   Acetone, 85 per cent.
   Columbian spirits, 10 per cent.
   Glycerine, 5 per cent.

The glycerine should be dissolved in the alcohol and added to the acetone.

These solutions are fat solvent and antiseptics. The final product is smooth, soft and elastic. The ligatures are the same size as the raw gut and, when used, abstract water from the tissues, which caused the knot to become firmly welded and so avoids the tendency to unravel which is associated with the alcohol stored gut. The final cost is about 1 cent a foot, and a laparotomy may be done with a catgut cost of less than twenty-five cents.

The choice of the raw gut is of importance. It should be soft, strong and unbleached. The qualities desired in the sterilized product should be looked for in the raw gut. Gut which is clear and translucent like violin strings is not good for ligature material and, if, on pinching the gut, a white mark or crack appears it is a sign that the gut contains too much fat or that the gelatinous portion is firmly coagulated and that it will not make soft ligatures.

The method is simple and inexpensive. The ligatures are only handled once when they are put in the bottle. They will keep indefinitely provided the final solution contains no iodine: for continuous storage in iodine solution will destroy any gut. If it is required to store the gut for more than one year the gut should have two washings in the preserving solution.

CHAPTER VIII.

DIAGNOSIS OF EARLY PREGNANCY.

The diagnosis of pregnancy is one which must be settled positively or negatively in every woman patient who consults the physician. Without this it is impossible to intelligently diagnose and treat her ailment. If she is outside the child-bearing age, then the exclusion of pregnancy is not difficult, but between 15 and 50 years of age it is often a difficult question to eliminate pregnancy.

This must be done before any operation is undertaken, and almost every operator has had the experience of finding at operation an unexpected pregnancy. Unfortunate the surgeon who thus errs! He is held in execration by his patient and in derision by his colleagues. Yet the literature is full of such mistakes, although it is safe to say that the great majority are not published. Van der Veer, in 1889, collected 77 cases of abdominal section, in which unsuspected pregnancy occurred. I have been told, or have heard of at second hand, fully an equal number of cases, many of them in the hands

of most erudite and skillful physicians. This shows how difficult is the diagnosis of early pregnancy and how easy it is to make mistakes in regard to it.

The diagnosis of early pregnancy must depend upon the findings by vaginal examination, because the history is often inexact and the breast signs appear too late to be of value. Of the symptoms of pregnancy, nausea and vomiting, and cessation of menstruation are the most important. Nausea occurs in only about half of all cases and is more frequently found in elderly primiparae. It may be caused by other conditions and is only of corroborative value in the diagnosis of pregnancy.

Cessation of menstruation is of value as a sign of pregnancy, if the woman has been regular to the day, but if her menstruation has been irregular in time, then the sign is of no value whatever. Pregnancy may take place in the absence of menstruation, before puberty, in the amenorrhea of lactation, or in those who are in the habit of missing periods. Amenorrhea may occur after wasting diseases, tuberculosis, in acromegaly, tumors of the brain, particularly those of the hypophysis cerebri, fractures of the skull, sexual infantilism and the premature menopause. Menstruation may be stopped by change of climate and environment, as frequently in Irish girls coming to this country. So cessation of menstruation is of value in the diagnosis of pregnancy, if the woman has been previously absolutely regular, otherwise it is

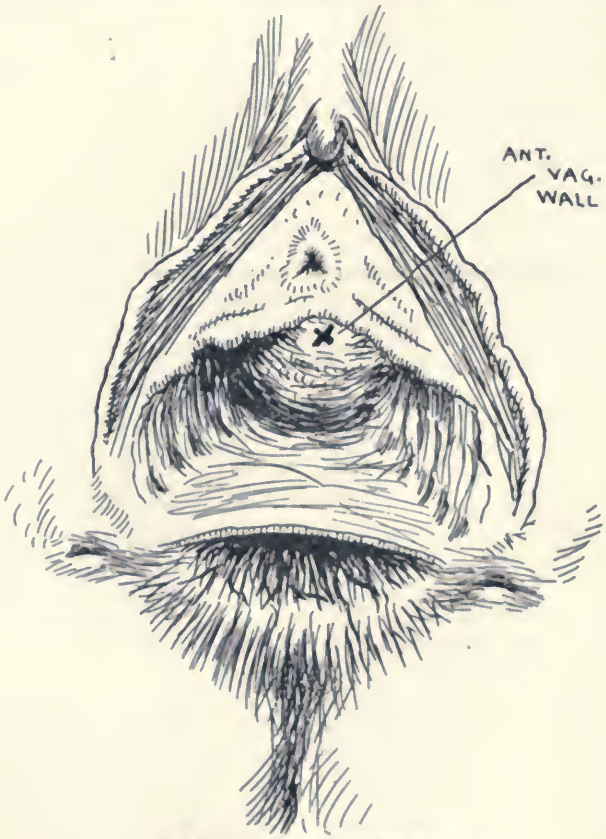


Fig. 1. Jacquemin's spot.

of no value as a diagnostic sign.

Signs on Vaginal Examination.—The diagnosis of early pregnancy must, after all, depend upon vaginal examination. The conditions caused by pregnancy of growth and increased vascularity of the uterus must first have their effect upon the uterus itself and the pelvic organs. The changes may first be expected in the uterus itself, then in the vagina and the adjacent parts. The signs of pregnancy may be divided into 1, the congestive signs, i. e., blush and flush of the vaginal mucous membrane, blush of the cervix and softening of the cervix, and 2, uterine signs, including enlargement of uterus, softening of the uterus, intermittent uterine contractions, Hegar's signs and the author's sign.

This study is based upon 150 cases carefully examined with respect to these signs, of which 100 cases were previously reported.

The duration of the pregnancy was calculated from the date of the last menstruation. This may cause a mistake in the calculation of the length of time of pregnancy, but it is the only date which can be absolutely fixed.

Great care was taken in the examination of these women in order that any tendency to error might be avoided. The diagnosis in the early weeks is one which must depend upon exactitude and skill in vaginal examination. It is of the greatest importance that the bladder should be emptied. If any urine remains within the bladder, it is impossible to appreciate any minor changes in the size, shape and consistency of the uterus. The fundus cannot be accurately outlined and the intermittent contractions of the uterus cannot be felt.

The waist bands should be loosened and the patient in good position with the hips well elevated upon an examining table or a hard bed. If necessary, a board should be put under the bed. The operator should be in an easy position and one in which he may be able to hold his examining hands perfectly still over a period of minutes in order to properly appreciate the intermittent uterine contractions. The length of vaginal examination should extend over sufficient time to recognize two contractions of the uterus with the intervening relaxation. This is usually from five to ten minutes. If the patient is upon an examining table, one should rest one's foot upon a stool or step, and the arm upon the thigh in order to have proper control of one's hand. If the patient is upon a bed, the elbow may be rested upon the mattress. In this way, it is possible to take all muscular strain off the examining hand and more delicately appreciate any of the more minute pelvic changes. The greatest possibility of error is in making too hurried an

Fig. 2. Asymmetrical enlargement.

examination and in finding a uterus in one phase of its contraction or relaxation, so masking other signs.

The cases are arranged in regard to the duration of pregnancy and to the number of times each sign was found. No case was included in the series, unless the author was convinced that it was a pregnancy, and not some condition simulating it. When Hegar's sign, the intermittent contractions of the uterus, softening of the cervix, and the author's sign of flexibility of the lower uterine segment were present, the diagnosis was considered exact. The cases are arranged in a table of 100 cases showing the percentage of the finding of the signs and the weeks at which they occurred. The additional cases bear out the table.

TABLE OF 100 CASES ARRANGED IN PERCENTAGE.

Week of Pregnancy	5	6	7	8	9	10	11	12	13	Total
Number of Cases:	6	8	12	12	15	15	12	12	8	100
Enlargement of Uterus:										
Symmetrical	0	4	9	3	9	3	9	11	5	53
To the left	2	1	2	3	3	6	2	0	2	21
To the right	4	3	1	6	3	6	1	1	1	26
Softening of the Uterus:										
Symmetrical	0	4	9	3	9	3	9	11	5	53
On the left	2	1	2	3	3	6	2	0	2	21
On the right	4	3	1	6	3	6	1	1	1	26
Jacquemin's Sign:										
Slightly	0	2	3	6	9	4	2	4	4	34
Markedly	0	0	0	3	0	6	6	4	4	23
Absent	6	6	9	3	6	5	4	4	0	43
Cervix Blush:										
Present	2	1	3	6	9	10	10	12	8	61
Absent	4	7	9	6	10	5	2	0	0	39
Cervix Softening:										
Present	2	2	6	6	8	12	10	12	8	66
Absent	4	6	6	6	7	3	2	0	0	34
Hegar's Sign:										
Absent	2	1	3	0	0	0	0	0	0	6
Moderately	2	6	6	6	9	8	4	3	1	45
Definitely	2	1	3	6	6	7	8	9	7	49
Intermittent Contractions:										
Present	3	6	12	12	9	13	11	12	8	88
Absent	3	2	0	0	4	2	1	0	0	12
Author's Sign of Flexibility of Lower Segment:										
Definitely	2	6	8	9	12	12	10	10	8	76
Moderately	2	2	3	3	4	3	2	2	0	21
Absent	2	0	1	0	0	0	0	0	0	3

Congestive Signs.— *Jacquemin's Sign.*—This sign of bluish tinge of the vaginal mucous membrane is one which was first taught in 1837 by Jacquemin. In the examination of 4,500 prostitutes in compliance with police regulations of Paris, he observed that this violet hue of the vagina was present very early in cases of pregnancy. This violet hue or blush of the vagina was likened by Jacquemin to the lees of urine or claret at the bottom of the cask. In this series, it was found that the sign was observed in about two-thirds (57%) of all cases before the thirteenth week. It was present less often in the early weeks and more often in the later ones, as may be seen from the table. It is almost constantly present at the thirteenth week. This is because, as pregnancy advances, the congestion increases, and so in the early weeks congestion is small and, as time goes on, it becomes greater.

It was found that this congestion of the vagina began as a rule at a spot about 2

cm. or a thumb's breadth below the orifice of the urethra. From this spot, the congestion and violet hue spread over the vagina. This I have called Jacquemin's spot after the discoverer of the sign of blush of the vagina. The violet color does not show at first upon the surface of the mucous membrane; but as here the mucous membrane has creases and crevices, the sign is seen as streaks of livid bluish purple at the bottom of these furrows. The phenomenon may be best seen at its first appearance by separating the labia and stretching the mucous membrane, so that these creases may be opened and the engorged veins exposed.

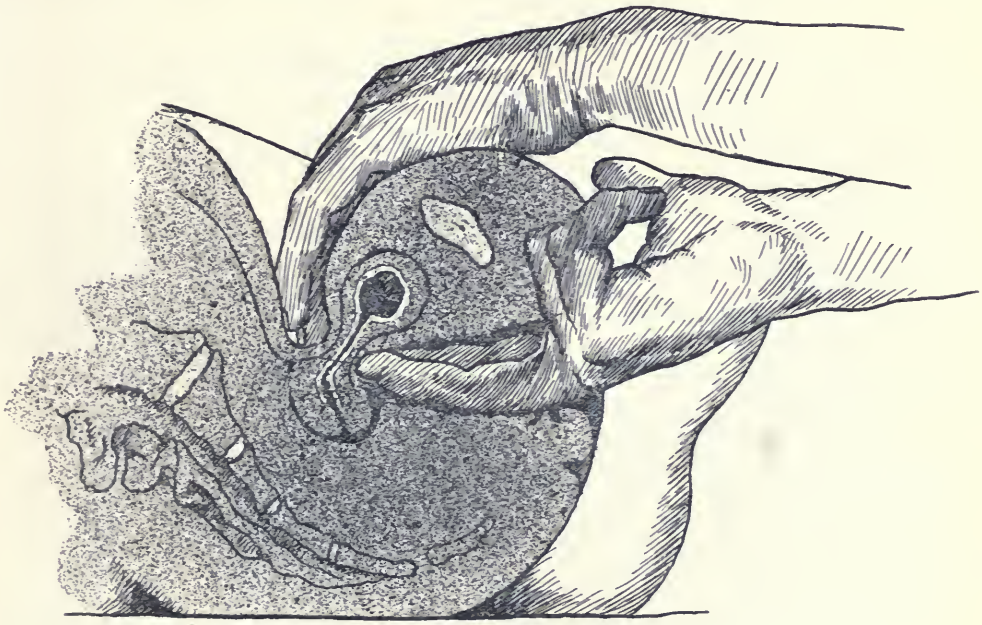


Fig. 3. Hegar's sign.

Blush of Cervix.— The violet hue of the cervix, also due to congestion, is usually a more satisfactory sign, than that of blush of the vagina. It is more definite and more frequently found. The changes of pregnancy can be depended upon to show in the uterus before they appear in the vagina. The cervical blush was present in about two-thirds of the cases, seldom in the early weeks and more constantly as pregnancy advanced, as may be seen from the table.

Softening of the Cervix.—Softening of the cervix was noticed in about the same proportion as blush of the cervix in about two-thirds (66 per cent.) of cases. The sign as may be seen from the table was not reliable until after the tenth week. The softening seemed first to occur from without inwards, the mucosa becoming congested and velvety soft, while the hard core of cervical tissue could be felt within. The cervix later increased in softness throughout.

The softening of the cervix also involves the isthmus of the uterus and so has some effect upon the position of the cervix. The cervix in the non-pregnant lies at an angle across the vagina, but with the softening of pregnancy this angle is not maintained; the pressure of the vaginal walls causes a

bend in the isthmus so that the cervix comes to be more in the axis of the vagina. This is in itself suggestive of pregnancy that the cervix should be in the same axis as the vagina.

These congestive signs of change in color and consistency of the vagina and cervix are readily caused by any congestive condition save pregnancy and are very reliable in its diagnosis after the twelfth week of gestation. Before that time they are unreliable, although offering strong corroborative evidence.

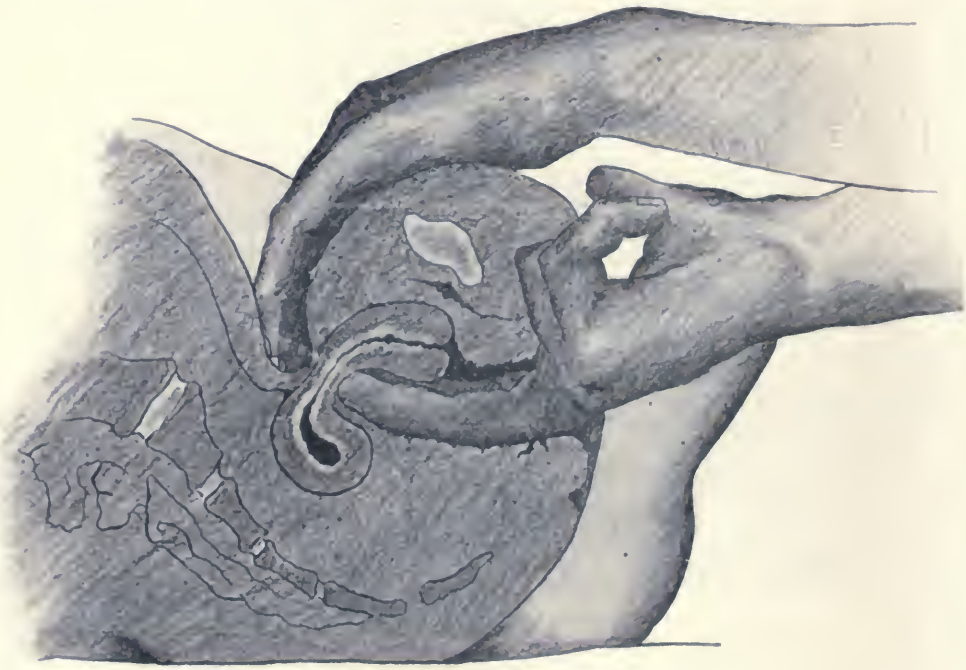


Fig. 4. Hegar's sign.

Changes in the Uterus.—The growth of the physiological tumor occurring as it does in the uterus, it is here that the first changes caused by gestation may be felt. Uterine enlargement is one of the first signs of pregnancy, and, without it, no positive diagnosis of pregnancy should ever be made. The enlargement is not, as a rule, symmetrical, but occurs in one or other horn of the uterus. In the early weeks the enlargement is not accompanied by complete softening of the uterine tissue, but is somewhat softened with scattered hard spots or islands of firm tissue, giving an impression not unlike a very soft uterus with small firm nodular fibroids.

The enlargement and softening usually progress together and are more asymmetrical in the earlier weeks, but, as growth continues, the uterus becomes more and more symmetrical until, after the tenth weeks of pregnancy may become almost an ovoid.

This asymmetry of the uterus in the early weeks of pregnancy may become almost a distortion and may give rise to grave errors of diagnosis. It is likened to a face swollen from an inflamed tooth and on account of the softness and apparent detachment from

the uterus, is not infrequently mistaken for ectopic pregnancy. The firm spots or nodules disappear after the early weeks and are believed to be due to the firm uterine tissue undergoing softening from the spread of congestion along the blood vessels.

The enlargement of the uterus is asymmetrical in more than half of the cases. It is seldom symmetrical before the seventh week and more commonly symmetrical after the tenth week after the last present menstruation. In other words, as pregnancy advances, the asymmetrical uterus becomes more and more symmetrical.

Softening of the uterus is a sign which should be taken with that of enlargement and is present in the same proportion of cases. The softening usually takes the form of an elastic doughiness with isolated firm spots or buttons. These firm spots disappear about the tenth week.

The softening and the enlargement of the uterus are usually situated upon one or other corner of the fundus and marked off from the firmer unenlarged part. The firm edge of the normal uterus tissue is very distinctly palpable.

Where there is retroversion, the congestive signs of flush of vagina, etc., are more marked and the softening of the uterus is increased out of proportion to the duration of pregnancy. The congestion of pregnancy has added to it the congestion of the retroversion of the uterus.

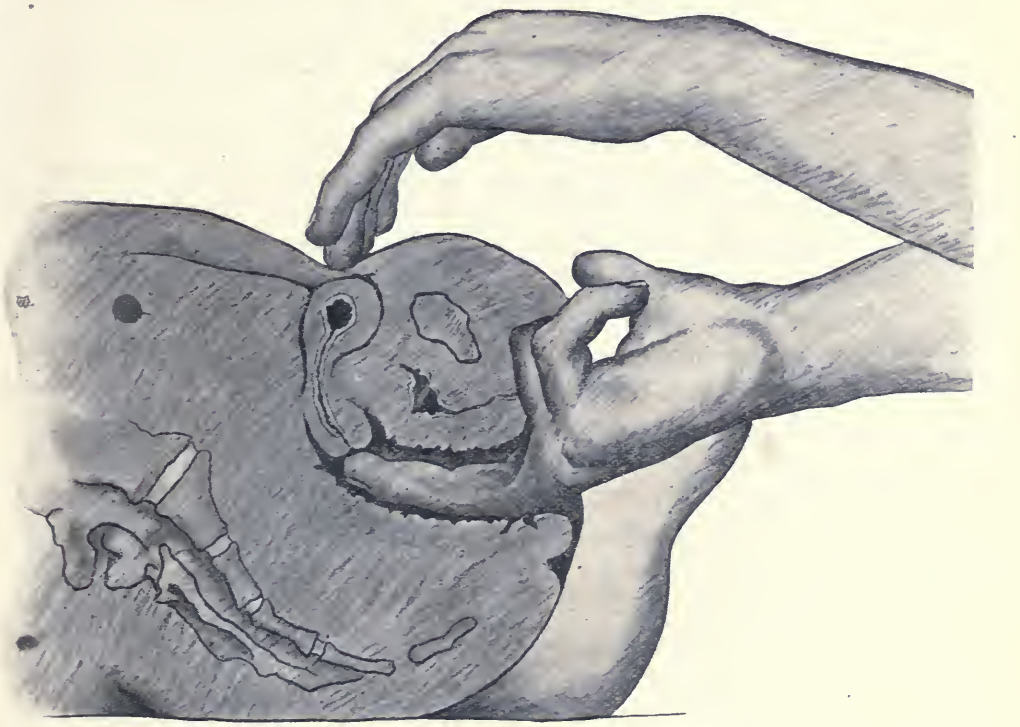


Fig. 5. Author's sign of flexibility of the isthmus of the uterus—Hinge sign.

The enlargement and softness of the uterus is often joined with a marked thinning of the uterine wall.

Intermittent Uterine Contractions.—These contractions were studied by Brax-

ton Hicks and believed by him to exist only in later pregnancy, but they occur constantly in earlier pregnancy and are always present upon vaginal examination. To be properly appreciated, the bladder must be empty and the patient's waistbands loosened.

The manipulation of the fingers upon vaginal examination are sufficient to cause a contraction, so that by the time the examination begins, a contraction is present. This contraction usually lasts from one to three minutes and is followed by a stage of relaxation of longer duration. The contraction involves the whole uterus, including the lower uterine segment and cervix. The change in color of the cervix, from pale violet to a normal pink hue, caused by the contraction, may sometimes be seen through a speculum and in a good light.

These intermittent contractions are a constant accompaniment of pregnancy and influence the value of the other signs because the contraction of the uterus make it firmer and so makes it difficult to appreciate the softening and enlargement and to elicit Hegar's and the author's signs. For this reason, these signs should be obtained during the interval of relaxation.

The uterus becomes smaller, harder and more erect. It becomes shorter and firmer. The softened part also contracts, but not so firmly, as the rest of the uterus. There is no irregularity of contraction, but the thinner, softer part contracts less forcibly.

Intermittent contractions are believed by the author to be a constant accompaniment of early pregnancy. The percentage of elicitation may be seen from the table; this is due to the fact that in the earlier cases, the value of the sign was not appreciated. Uterine contractions also occur sometimes before menstruation, in submucous fibroids, and sometimes in ectopic pregnancy.

Hegar's Sign of Compressibility of the Isthmus.— This sign depends upon the softening in the isthmus due to the increasing congestion. Hegar advised one finger in the rectum, but it is best obtained by two fingers in the anterior vaginal fornix, while the other hand is behind the fundus. When a relaxation of the uterus is present, preferably just after a contraction, the internal or vaginal fingers are thrust upwards and forwards in the direction of the patient's umbilicus. The isthmus will be felt to give or stretch like a stout elastic band. The upper fingers press down at the same time and control the maneuvre. This sign is very exact, as may be seen from the table. It is present in certain other conditions, but on the whole is very accurate.

Author's Sign of Flexibility of the Isthmus—Hinge Sign of Pregnancy.— This sign also depends upon the softening and vascularity of the lower uterine segment, but it can be appreciated before Hegar's sign of compressibility and thinning ("..... *Weichheit, Nachgiebigkeit und Verdünnung des untern Uterussegments*"). The vascularity which causes both signs allows flexibility before compression and thinning of the lower segment.

To obtain the sign, the bladder must be empty and the waistbands loosened. One hand is placed upon the abdomen and the tips of the fingers press upon the posterior part of the fundus. The palmar surfaces of the fingers in the vagina rest under the posterior aspect of the cervix. The uterus should be in a state of relaxation. The fingers of both hands are then pressed together as if to make the fundus and cervix meet. The fundus and cervix then come

easily toward each other, as if the isthmus of the uterus were a well oiled hinge. The fundus is pressed downwards and the cervix drawn upwards, as if to make the tips of the fingers of each hand meet. The uterus may often be completely doubled upon itself, although flexibility of the isthmus is in itself an expression of the sign. In retroversion the sign may be obtained by pushing the cervix backwards. The sign was present in 97 per cent. of cases.

Other signs of pregnancy as the "jug" sign, where they depend upon increased growth in the uterus, are of value later in pregnancy. Pulsation of the arteries, etc., have no constant value. A soft or fluctuating spot upon the anterior wall of the uterus is of no value in the early diagnosis, although present after the third month. The irregularity of softening and enlargement make any one spot uncertain.

The diagnosis of early pregnancy must depend upon no one sign, but upon the conjoined evidence of all signs. The congestive signs of flush of the vagina, etc., offer reliable evidence after the third month, but are of no great use before the ninth week.

The diagnosis of early pregnancy must depend upon the changes in the uterus from the growing ovum—irregular enlargement, symmetrical or otherwise, intermittent contractions, Hegar's sign and the author's sign.

These last two signs of compressibility and flexibility of the isthmus with enlargement and irregular contraction allow of a positive diagnosis being made within ten days after the missed menstruation and increase the ease of positive diagnosis at a later period.

CHAPTER IX.

PUERPERAL INFECTION FROM THE GONOCOCCUS.

With Report of a Case of Death from Gonococcus Puerperal Infection and a Resume of 17 Previously Reported Cases.

Puerperal infection is a disease which is usually associated in thought with streptococcus infection and such a commonly infecting organism as the gonococcus is overlooked. This infection is probably the most frequent form of infecting organism in maternity practice. Bumm states that approximately one-third of all his clinic cases have gonococcus infection. Stone and myself,[1] in our report of 17 cases found that gonococcus infection was present in at least ten per cent. of our cases, when only selected cases were chosen for bacteriological examination, and undoubtedly more than this percentage were infected.

The chief difficulty in the study of gonococcus puerperal infection is the difficulty of its bacteriological study. Cultural methods have only recently been made applicable to the gonococcus. This difficulty has been due to the frequency with which it occurs in association with other organisms, particularly the colon, and the fact of the difficulty of obtaining it in swab lochia cultures early in the infection, when intrauterine cultures are usually taken. However, with a better knowledge of its cultivation and the method of taking cultures for this organism, it is being more accurately studied.

[1]Stone and MacDonald, *Surgery, Gyn. and Obst.*, Dec., 1905.

Gurd[1] has shown that cultures of the gonococcus will grow well upon hemoglobin agar of a titer from .6 to .8 per cent. phenolphthalein (hot titration). He has also shown that it is often useless to make cultures from the fluid lochia or pus, as organisms are frequently dead there; but in order to obtain exact results, cultures should be taken by scraping a swab over the infected tissue surface so as to get organisms from the tissues. The cervix should be exposed by a bivalve speculum and a swab passed into the os uteri and rubbed over the endometrium. The material of the swab is seeded over the blood agar and some isolated colonies are usually produced by this method. Within 24 to 48 hours the gonococci, if present, will appear as small, bluish-gray, semi-transparent colonies, from 0.5 to 1.5 mm. in diameter. It is a very characteristic growth on blood agar. This method and the better knowledge of the cultivation of the gonococcus has rendered most of the bacteriological work done upon the lochia of puerperal infection of no value as far as the gonococcus is concerned, and for that reason of very much less value than we formerly placed in it. It will have to be most worked over to include consideration of the gonococcus and anaerobic organisms.

The constant question among physicians is why in the last twenty years the percentage of puerperal infection has not decreased and why there is not greater freedom from it. The reason is the prevalence of gonococcus vaginal infection, its chronicity and resistance to treatment. It shows few signs of inflammation and in the puerperium lights up to cause fever, chills, salpingitis and often death. When the bacteriology of the puerperal lochia is studied in the light of newer knowledge, it will be known how much puerperal infection is due to this organism and how many times it has been overlooked.

In our 17 cases, previously reported, organisms were seldom found before the fifth day and they were easier to identify as the time went on. Streptococci were associated with two cases, one of which died and colon bacillus with one case. Eight cases had fever above 101° F. and twelve above 100° F. The fever lasted on the average four days. Nine of the seventeen had symptoms of abdominal pain which was of the character of pelvic irritation due to salpingitis and was believed to be an extension of the disease to the tubes. One case died from rupture of a gonococcus pus tube and associated streptococcus infection.

Gurd, in his series of five cases, has reported a somewhat similar case of death from gonococcus and streptococcus infection. The association is not uncommon and is apparently very dangerous, as it seems to increase the virulence of both organisms. In Gurd's four other cases of pure gonococcus infection, there were chills, marked rises of temperature and the other signs of severe puerperal infection. Mayer[1] also reported six cases with high fever, severe general infection with chills, so as to give the clinical picture of a septic condition.

These reports go to show what we maintained in 1905 that puerperal gonococcus infection is often as severe as infection with the other pyogenic organisms and that this organism is frequently overlooked in the study of puerperal infection. As an ex-

[1]Gurd: *Jour. of Med. Research*, Aug., 1910; *Am. Jour. of Med. Sciences*, Dec., 1908.

[1]Mayer: *Monatschrift f. Gynaekol. and Geburtsh.* June, 1906.

ample of the severity which pure gonococcus puerperal infection may attain, I would add the report of a case where the death occurred from puerperal infection with the gonococcus as the sole infecting organism.

CASE OF GONOCOCCUS PUERPERAL INFECTION — DEATH.

J. B., aged 25, Primipara. Full term; four hours in labor; delivery normal. Vertex R. O. A. Baby weighed 6 lbs. 8 oz., and weight at discharge was 6 lbs. It was fed artificial after the fourth day, as the danger to the child from toxins in the mother's milk was recognized. There was pain, rigidity, masses in the pelvis and a clinical picture of peritonitis on the seventh day. The lochia became purulent and creamy. Gonococcus was isolated in pure culture from the uterine lochia and on smear. A normal saline douche was given on the sixth day and a rise of temperature followed. Death occurred on the ninth day, as may be seen from the chart.

Autopsy showed bilateral pyosalpinx, peritonitis with pockets of pus all over the abdomen with marked evidence of repair. Gonococcus purulent endometritis. The gonococcus was the only organism isolated from the pus and was grown out in pure culture.

This case is an example of what severe infection may result from the gonococcus in the puerperium.

While these cases are severe and show the possibility of severe grades of infection with this organism, the usual course of the disease is not of this severity, any more than the usual course of streptococcus puerperal infection is of this degree of severity. Gonococcus puerperal infection usually runs a milder course with a comparatively low grade of fever. The most characteristic thing in this infection is the tendency to result in purulent endometritis with a purulent flow from the uterus following the cessation of the bloody lochia and the tendency of the disease to extend upward to involve the tubes in gonococcus salpingitis. For this reason, the after-effects of gonococcus infection are much more severe than streptococcus puerperal infection; for after a patient recovers from streptococcus infection, all adhesions vanish and all evidences of inflammatory remains disappear. But with gonococcus infection the tendency is toward thickening of the walls of the tubes, parametritis, pelvic peritonitis and other marked evidences of repair of tissue.

The alteration of the red lochia into the creamy purulent discharge is another evidence of the extension of this organism along the mucous membrane of the genital canal. This is its usual way of progression, although it may on occasion penetrate the uterine muscle as occurred in one of our cases. Numerous gonococci occupied spaces between the superficial epithelial cells and the intracellular connective tissue and even down into the musculature. This occurs only occasionally in the softened puerperal uterus.

One interesting phenomenon of gonococcus puerperal infection was first drawn attention to by Stone[1] and myself in 1905 and was confirmed by Mayer[2] in June, 1906, and Lobenstine and Harrar[3] in December, 1906. We found that the majority of breast-fed babies showed evidences of disturbed nutrition and intestinal disturbance. This was shown by green stools and a progressive loss of weight. The marked difference betwen the nutrition of these babies and of those nursed by non-infected women was most striking and transference in two instances to breasts of non-infected women was followed by a rapid improvement. The initial loss of weight was greater and it was recovered much more slowly. They were more subjected to rises of temperature. One-third of the babies died,

[1]Stone and McDonald: *Surgery, Gyn. and Obst.*, Dec., 1905.

[2]Mayer: *Monatsschrift f. G. & G.*, 1906, XXIV, 62.

[3]Lobenstine and Harrar: *Bull. Lying-In Hosp.*, Dec., 1906.

counting in the cases of premature labor. Of Mayer's cases, one-third of the babies succumbed in the first week of life and the others were weak and their nutrition disturbed. Lobenstine and Harrar, in a study of 50 babies of gonorrheal mothers amply confirm our statement.

As a result of these observations it may be seen that the effect of gonococcus infection extends to the second generation in a way not heretofore recognized, and for these reasons it is inadvisable to allow a mother with gonococcus puerperal infection to nurse her child, at least until the effects of the infection have passed off.

The treatment of this form of puerperal infection must be largely that of prevention. The specific vaginitis is always present before labor and appropriate measures should be taken against it. This is best done by douches before labor. The value of douches before labor in preventing puerperal infection must be studied anew. They were formerly thought to be worthless and bad, because the numbers of organisms increased after douching. This was with bichloride of mercury and formalin, but it has been proved that, in aqueous solutions, these antiseptics are useless in the presence of organic tissue, such as skin, mucous membrane, blood serum, pus, etc. For this reason, instead of being antiseptics, they were only irritants. But with the advent of new efficient coal tar derivative germicides this is not true.

Burckhardt and Kolb,[1] for example, from v. Herff's clinic, in two series of 700 and 400 cases, found that the morbidity in the douched and undouched was in the first series 6.5 per cent. douched to 8.6 per cent. undouched, and 7.7 per cent. douched to 10.5 per cent. undouched in the second series. They used a halogen compound of kresol, known as chlor-meta-kresol. It is said to be powerfully germicidal, to be only slightly affected by the presence of albuminous fluids and to be perfectly harmless to the mucosa of the vagina. It is nontoxic, and they speak highly of its restraining influence on the growth of organisms.

This substance as a douche before labor for gonococcus infection is the best form of treatment which can be given. Any effort at local treatment can only end in uterine irritation and possible premature labor.

Labor should be conducted with as little traumatism and as few examinations as possible. After the infection is established, the treatment must consist of douches of the above mentioned germicide and as little operative manipulation as possible. Rest in bed for longer than the usual time should be advised. Local treatment and operation for local pus collection must be done on diagnosis of the abscess. But the greatest hope is in the prevention of the condition.

[1]Burckhardt and Kolb, *Zeits. f. G. u. G.* LXVII, 1.

CHAPTER X.

BLADDER TROUBLES IN PREGNANCY —A CYSTOSCOPIC STUDY BASED ON 54 CASES.

The proximity and intimate association of the bladder with the uterus involves it in any changes which may take place in this organ. The increase in size and blood supply of the uterus in pregnancy causes alterations to appear in the bladder. This in the very early stages of pregnancy amounts to only a congestion of the trigone. Apart from cases of cystitis twelve cases of normal early pregnancy without any bladder disturbance were examined to

ascertain if there were any characteristic or distinct changes which might aid the diagnosis of early pregnancy. These cases were examined at varying periods and most of them repeatedly during the early weeks of pregnancy. The congestion usually appeared very early in pregnancy and was noticeable over the trigone about the sixth week. It began at the outlet to the urethra, the bladder orifice, and spread upwards toward the ureteral orifices. The spread of the congestion followed the course of the radiating blood vessels.

This hyperemia had a very distinct effect upon any previous inflammation of the bladder or trigone. If there had been previous symptoms of trigonitis, it was common to have a recrudescence of these symptoms of frequency of urination and pain after the addition of the congestion of pregnancy. This hyperemia is more marked in pregnancy with retroverted uterus, because, in such conditions of retroversion, there is a greater amount of congestion in the early part of pregnancy, than there is with pregnancy and anteversion. With the advance of pregnancy the congestion of the bladder mucosa becomes more and more marked. The membrane loses its usual pink-white, shell-like appearance and becomes a cream-yellow, and also gains the appearance of greater thickness. It is the difference between white China silk and cream-colored velvet. The bladder lining becomes more velvety and softer. There is apparently a greater increase in edema and a greater increase in the lymphatic tissue of the bladder.

This edema is usually most marked about the neck of the bladder. It involves the orifices of the ureters also, so that they become more thickened and more erect. This thickening of the ureters is so noticeable that in pregnancy they can usually be palpated from the vagina. This thickening of the ureters may cause an obstruction of the urinary flow; although, if there has been previous inflammation of the trigone, the ureter is more commonly rigidly patent—the so-called "golf-hole" orifice.

This condition of patulous ureteral orifice is apparently due to the stretching of the intra-ureteral ligament by the growing cervix of the pregnant uterus. The enlarged cervix presses upon the bladder to which it is intimately related and causes alteration in the structure of the ureteral orifice by the pull which is caused. The orifice from being an elevated papilla becomes flattened, stretched and elongated. This condition, as described, was cystoscopically traced in one case who became pregnant while under treatment for cystitis.

The orifice on the right side more frequently becomes patulous, than that on the left. This may be due to the fact that the bladder, particularly in the later months of pregnancy, lies more upon the right side. This may be explained by the rotation of the uterus to the right and not by the position of the child.

The "golf-hole," or patulous ureter, is usually an association of previous bladder inflammation and is in the specimens I have obtained at autopsy usually surrounded by round-celled infiltration, plasma cells and inflammatory edema.

In addition to changes in the trigone, the whole bladder wall is altered in appearance and texture. There is an apparent increase in the epithelium and large quantities of epithelial cells are cast off in the urine. This is one of the chief character-

istics of the bladder in pregnancy; the shedding of the epithelium and the proliferation of new cells.

In six cases of pregnant bladders, obtained at autopsy, the general picture was that to be expected from the cystoscopic examination. The muscle fibers had hypertrophied and this increase was most noticed in the external muscular layer and more particularly in the lower part of the ureter, where it lay with the bladder wall itself. This was frequently associated with small round-celled infiltration, plasma cells and edema. The epithelium showed considerable active proliferation with the appearance of many karyokinetic separations of the nuclei, and there were a considerable number of degenerating or disintegrating superficial epithelial cells with pale staining nuclei.

In the later stages of pregnancy, displacement of the bladder is the common event. This displacement is almost constantly to the right and apparently, from Martin's roentgenograms,[1] is due to the torsion of the uterus upon its longitudinal axis from left to right. The extent of the displacement is not influenced by labor, but by the size of the presenting part and by the thickness of the tissues around the bladder. The trigone and the upper part of the urethra can sometimes accompany the bladder in its displacement.

This displacement increases the congestion and edema in the pregnant bladder and there are sometimes found ecchymoses around the neck of the bladder.

These alterations in the bladder of the pregnant cause some differences in the type of inflammation which may occur, and in its treatment. There exists in pregnancy a type of inflammation which is marked by fairly generalized edema and hyperemia. Speaking generally, inflammation is much less apt not to be confined to the trigone, than in the non-pregnant, and is more apt to spread in the pregnant bladder over the rest of the bladder wall. The inflammation is more apt to be general and uniform. There is usually marked desquamation and exfoliation of epithelium and pus. The amount of pus is greater in bladder inflammations in pregnancy, than in the non-pregnant. The exfoliated cells and shreds cling to the bladder wall like small tags. The picture is that of an acute cystitis with much edema and marked congestion. The mucosa is markedly swollen, softened and boggy. The amount of pus excreted is great. The clinical picture is sufficiently characteristic to be called cystitis of pregnancy.

There is apt to be a recurrence of this inflammation with a succeeding pregnancy, as was seen in two cases that were examined in succeeding pregnancies with the same picture in each pregnancy. In one case there was hemorrhage due to the oozing of the blood from an engorged varicose vein. This recurred in each pregnancy, but was stopped by injections over the area of solutions of suprarenin. In one pregnancy the oozing continued until term after which there was rapid recovery.

In both of the cases, in the first pregnancy, there was on account of a right-sided pain and large quantities of pus, suspected pyelitis of pregnancy. However, catheterization of the ureter showed clear urine and the cystoscopic picture explained the large amounts of pus.

Fever, usually of a mild degree, may be present in cystitis of pregnancy. It is much

[1]Martin: *Arch. f. Gynaekologie*, 1909, IXXXVIII, 2, *Zentralbl f. Gynaek.* 1909.

more common, than in cystitis in the non-pregnant.

These alterations in the bladder and the different character of the inflammation explain the frequency of involvement of the kidney in pyelitis of pregnancy. The ureter loses its valve-like action and allows urine to regurgitate into the kidney pelvis. It may be that the displacement of the bladder to the right side may explain the greater frequency of involvement of the right kidney. An evidence of the fact that ascending ureteral infection is the common course in pyelitis is that the infecting organism is almost always the colon bacillus, and this is an organism rarely found in the blood.

The diagnosis of pyelitis of pregnancy should depend upon the cystoscopic examination and ureteral catheterization. It may be perfectly simulated by cystitis of pregnancy with fever, pus in the urine and right-sided pain, as may be seen from cases previously reported. In these, without ureteral catheterization, the diagnosis would have been mistaken and the wrong treatment would have been instituted.

The cystoscopic examination of the 54 cases of pregnancy shows that an old, latent trigonitis may often light up again with pregnancy and become general. A number of cases were followed throughout pregnancy and there was apparently no decrease of this congestion throughout.

Cystitis in the pregnant differs a little in its treatment from cystitis in the non-pregnant. The occurrence of ulcers is not so common. When they do occur, they should not be treated locally, until the surrounding bladder has recovered. Treatment in general is better made by medicated solutions, such as quinine bisulphate 1:2,000, boric acid, nitrate of silver 1:30,000 and mild astringents. Injection of small amounts of strong silver salts is not to be advised. The patients are more influenced by rest and plenty of water, than are the non-pregnant. Hexamethylentetramin should be used with care on account of its tendency to irritate the kidneys and, when used, should be combined with sodium benzoate. The kidney of pregnancy is usually the seat of a fatty degeneration and does not have as much reserve as the non-pregnant.

In the treatment, the absence of trauma and injury is of greatest importance on account of the softened and most susceptible condition of the bladder wall. For this reason, the utmost care must be employed in using the catheter[1] as has been pointed out in another paper.

THE COMPARATIVE VALUE OF THE DIFFERENT PHYSICAL SIGNS IN INCIPIENT PULMONARY TUBERCULOSIS.

BY

ROBERT ABRAHAMS, M. D.,

Adjunct Professor of Medicine in the New York Post-Graduate Medical School and Hospital; Consulting Physician to the Home of the Daughters of Jacob, New York.

The proper attitude to assume towards a patient who appears for an examination of the chest, is that of the veterinary towards his patient, namely, a physical examination uninfluenced by the mental bias of questions and answers regarding personal and family histories. Once the physical findings are ascertained, all kinds of data and information are welcome.

[1]MacDonald: Pyelitis in Pregnancy, *Am. Med.*, Dec., 1910.

I have learned to value this veterinary's attitude in teaching physical diagnosis, and so have the students, for there is nothing more gratifying than to have the signs confirmed by the symptoms, or the physical findings corroborated by the patient's history.

Of course I realize the difference between the charity client and the pay patient, the clinic and the office, but that difference does not detract from the merits of the method.

Those who adhere to the idea of "a pretubercular stage" regard the pale face as a pathological entity, and picture it as an expression of beginning tuberculosis. I do not know how the pale and haggard looking face ever became a component of the symptomatology of pulmonary tuberculosis, as it is so frequently associated with other diseases quite remote from the lungs. Indeed, it is not unusual to find a patient with early tuberculosis with a florid complexion.

Some writers and clinicians lay considerable stress on unilateral pupillary dilatation as an early sign of tuberculosis involving the corresponding apex. One has but to think of the many lesions of the brain and meninges which are attended by irregularity of the pupils in order to reduce the pupillary sign of early tuberculosis to comparative insignificance. Besides, in some people, one pupil is larger than the other, just as in some people one radial artery is larger than the other, with no lesion back of either anomaly.

In the same catagory of unimportant signs of early tuberculosis must be classed the red line along the upper gums. I know clinicians, good and true, who think a good deal of this sign, but would any one consider it even remotely suggestive in the absence of physical signs in the lungs?

Two signs suggestive of very early tuberculosis which are, in my experience, of comparatively great importance are, first the disappearance of the pulse when the arm, corresponding to the site of the lesion in the lungs, is raised straight above the head or turned to the back of the body; and, second, the accentuation of the second pulmonic sound.

The pulse phenomenon is found in 80% of cases of early tuberculosis of the apices. The accentuation of the second pulmonic is found, I am almost tempted to say, in 100% of cases of incipient tuberculosis of the apices.

To avoid an error in estimating the value of the pulmonic second in early tuberculosis, mitral disease, chronic bronchitis, and emphysema should be excluded. The absence of these diseases and the presence of an accentuated pulmonic second enjoins search for pulmonary tuberculosis and he who seeks shall find.

Though the difference of the pulse in an arm raised above the head is indicative of an early tuberculous apical infiltration, an accelerated pulse, to my mind, is of very little importance. The great, the very great, majority of incipient cases have a normal pulse rate.

Of equally small value is the rate of respiration. Ninety-nine out of a hundred cases of early infection have a normal rate of respiration. Rather than wrongly attribute accelerated respiration to trouble in the lungs, one might rightly ascribe it to the excitement of the moment incidental to the examination, or to the embarrassment of disrobing, in case of a woman; or to the fear of discovering "consumption."

The expansion of the upper lobes is normally unequal. The right expands more freely than the left. This physiological

difference offers a sign of comparative value in early and right apical tuberculosis. Should the expansion of both apices or upper lobes be the same, a strong assumption is justified that the right apex or right upper lobe is the seat of early tuberculosis. The possibility of pleuritic adhesions preventing the lung from expanding, is to be considered remote.

Restricted expansion of the left apex or upper lobe as a sign of incipient tuberculosis, is purely negligible, as expansion in that part of the lungs is hard to measure and still harder to estimate.

Retraction of the supra- and infra-clavicular spaces is of little value in early tuberculosis. Retraction is rarely present in the incipient stage; if present, one sided retraction is more significant than two sided, as simultaneous, bilateral apical incipent tuberculosis is exceedingly uncommon.

"Lagging" of the side of the chest where the tuberculous focus exists, as a sign of early tuberculosis, appears to me of comparatively little value, unless my experience with that sign is limited or imperfect. I watched thousands of patients breathe who had no lung trouble and noticed, in many of them, unequal movements of both sides of the chest.

Increased tactile and vocal fremitus is of some value in early tuberculosis of the left apex. It is of no value in the affected right apex. This is due to the fact that normally both forms of fremitus are less marked in the left than in the right apex. The right apex affords a standard of comparison for the left apex in case the left one is the seat of an early tuberculous deposit. Considerable experience is required to correctly estimate the exact diagnostic value of fremitus in the involvement of the right apex.

Lean people offer a better opportunity for the interpretation of fremitus than fat or muscular patients.

Muscular resistance over pulmonary tuberculous areas is of limited value for the following reasons: resistance is not always met with, nor is it found in half of the number of patients affected with incipient tuberculosis. Then, again, scores of patients of the neurasthenic type, as well as patients who have a mortal fear to be touched, will show muscular resistance to the palpating finger regardless as to what part of the body is palpated—normal or abnormal.

Percussion is of inestimable value in early tuberculosis. There is to be noted a change in resonance in 95% in early apical tuberculosis. The change is more appreciable in the left than in the right apex, because the normal resonance of the left apex is vesicular, hence the slightest deviation from it towards dulness will at once appeal to the ear.

The right apex is somewhat under a disadvantage, because its normal resonance is dull. The dulness is comparable to the dulness of the deep area of the heart, which should be taken as a standard in case of doubt. The dulness of the right apex changes, under the influence of a tuberculous infiltration into a note which I designated, in previous papers, as "dull-flat," meaning thereby, that the note is neither dull nor flat, it's between and betwixt.

This dull-flat note will be found in early tuberculosis affecting the right apex; a finger's breadth below the right clavicle, and the intrascapular spaces between the seventh cervical and fourth and fifth dorsal

vertebrae, in case these areas cover early tuberculous foci.

The following procedure will enable one to tell the difference between normal and abnormal dulness, or the dull-flat note. Let the patient inflate his chest and then hold his breath, normal dulness will change to vesicular resonance; the dull-flat note will remain unaltered.

Percussion is of much greater value in early tuberculosis of the apices than in the lower lobes. The time-limit of this paper does not permit to enter into explanations.

Austin Flint's vesiculo-tympanic resonance is of very great value in early tuberculosis of the apices, but unfortunately it is rarely encountered. Its importance depends upon its limitation to a small area of lung like an apex. If it is found scattered, it is indicative of emphysema not tuberculosis. Finally it is more often met with over the left than the right apex.

The height and summit of importance among physical signs in early tuberculosis is auscultation.

However, in order to properly interpret ausculatory evidence in case of disease, it is absolutely essential to know and to remember the acoustic properties of the lungs in health. The greatest auscultatory differences are found in the apices. The right apex has normally broncho-vesicular breathing; distinct whispered sound and a loud spoken voice. The same peculiarities are found in the second interspaces close to the sternum and in the intra-scapular spaces.

The left apex has vesicular breathing, indistinct whispered sound, and muffled spoken voice. The rest of the lungs share the same conditions.

Bearing these physiological and, therefore, constant differences, in mind, the diagnosis of incipiency at the left apex should be, and is, a comparatively simple matter. Compare the auscultation of the left with that of the normal right apex, and if they are identical, the left apex is beyond a doubt the seat of early tuberculosis. It is not important, or essential, to find all auscultatory signs in the left apex to conform to those of the normal right apex to pronounce the former tuberculous. The similarity of one or two signs are sufficient for the purpose of diagnosis.

The right apex presents a harder problem for diagnosis of an incipient tuberculous deposit. But, yet, the problem is not so hard that one need despair of solving it. The change that the normal broncho-vesicular breathing of the right apex undergoes is, that the expiratory sound becomes longer than the inspiratory sound, while in the normal state they are equal in duration.

The normal dulness changes into dull-flat resonance.

The whispered sound changes into a loud, rasping sound.

The spoken voice grows larger in volume, namely, higher in pitch.

All the other areas of lung, which share the acoustic qualities of the normal right apex, undergo the same changes when they become the seat of early tuberculosis.

Of all the auscultatory signs, the increased whispered sound is of the greatest value in the diagnosis of incipient tuberculosis. It is the one reliable, suggestive, and decisive sign of beginning tuberculosis in the lower lobes.

Rales, be they moist, dry or musical, are suggestive, if not pathognomonic, of early tuberculosis in an apex. They are of little or no value around the borders of the lower lobes, this is especially true with reference

to moist rales, for almost everybody has mucous rales in the borders of the lower lobes; this is probably due to the neglect of deep breathing.

If rales are heard with difficulty over the apices, I advise to place the stethoscope over the acromion processes, and, if they are present in the apics, they will be heard with greater distinctness and definition over those bony points.

Text books emphasize "diminished breathing" as an early sign of incipient tuberculosis. This sign may be important, but it is not met with as often as text book writers aver.

Exaggerated breathing, or harsh breathing is not a sign of early tuberculosis affecting lung over which it is heard. Such breathing is really and truly compensatory in character, and one should look for tuberculosis at the corresponding opposite lung.

257 West 88th Street.

THE CURE OF LEPROSY AN ESTABLISHED FACT.

BY

E. S. GOODHUE, A. M., M. D., LL. D.,
The Doctorage, Hawaii.

The result of a cure of leprosy by surgical removal of a localized lesion, recently reported by the medical superintendent of the leper settlement at Molokai, settles the matter as to curability of the disease, enlightens us as to previously obscure ideas regarding immunity and non-immunity based upon puzzling data, and explains the vexed "incubatory period."

"Leprosy," says the report[1], "is more frequently than otherwise primarily a localized disease. As such it may be eradicated through the judicious application of suitable topical remedies, or careful surgical intervention.

The whole period between infection and development of the primary lesion (incubation) may be as short as five days.

The initial focus may remain localized for anywhere from a few months to years or even a life time, through (a) natural physiological, economic phenomena; (b) artificial circumscription or walling-in of primary infection, as in the subcutaneous injection of 5% solution of carbolic acid.

Leprous rhinitis or 'snuffles' is very infrequently neither a primary infection or manifestation, but usually secondary to general or systemic invasion, and occurring only after longer or shorter (more commonly the former) periods of localization.

Left undisturbed (unrecognized or untreated) systemic infection and general dissemination may occur from auto-infection, through (a) natural proliferation of bacilli and toxines engendered; (b) traumatic injuries such as lacerations, contusions, luxations and fractures; (c) intercurrent fevers; (d) intemperance and debauches with usual concurrent exposure; (e) natural susceptibility or same acquired through loss of body-tone; (f) in female, pregnancy."

The writer further states:

"However absurd the statement may seem to those not thoroughly familiar with every phase of the disease, I boldly assert that in the unsuspectedly large number of incipient cases where the disease is localized (peripheral or nerval), these or any treatments which remove the then circumscribed area or focus of infection, without opening up channels for metasta-

[1]Report of Hawaiian Board of Health, June, 1912.

tic dissemination, will cure the disease in from six to twelve months' time.

Ferruginous and nutritive tonics, emunctorial eliminants, including hydrotherapy, by the local treatment of freezing in 1910. This treatment by the "snow" pencil of compressed carbonic acid gas was tried with success[1] by Dr. Lord of Johns Hop-

Fig. 1. Anesthetic Leprosy.

are here of more than ordinary importance."

Dr. J. T. Wayson in charge of the Kalihi Receiving Station, reported a cure kins skin clinic, but no report was made until the appearance of Dr. Hirshberg's article of June, 1912, in a lay journal.

[1] *Popular Mechanics*, June, 1912.

Fig. 2. Tubercular Leprosy.

Besides the local treatment, Dr. Wayson states that "the main constitutional treatment consisted of doses of iodid of potash, chaulmoogra oil, anti-leprol, and elix. of iron, quinin and strychnine, together with hot baths and special treatment. Several circumscribed lesions, one especially of subdermal type, with the leper organism present, were successfully treated by the local application of the di-oxid carbon pencil."

REPORT OF CASE OF PREGNANCY WITH HYDRAMNION.

BY

S. J. DRUSKIN, M. D.,
New York City.

I deem this case of sufficient interest from a diagnostic standpoint to warrant the following report:

Mrs. R. B., age 39, para XI, family and previous history negative so far as it has any bearing on this case.

Menstrual history:—Patient first menstruated at eighteen years of age. Catamenia always regular, of three to four days duration, moderate in amount; for the past three years from seven to eight days duration and profuse. Last menses, February 7th, 1912.

Obstetric history:—Eight children at full term, last child five years ago. Patient aborted twice, last abortion six years ago. All previous labors and lying-in periods normal. During all previous pregnancies patient was troubled with nausea and vomiting.

I first saw the patient September 15th, 1912. She complained of amenorrhea, pain in the lower abdominal region, loss of weight (20 lbs. in the last nine months).

In her previous ten pregnancies, without exception, she suffered with severe nausea and vomiting. At this time, however, she did not believe she was pregnant because these symptoms were entirely lacking. Neither did she feel fetal movements whatever. She consulted several eminent specialists, numerous examinations were made, resulting in various diagnoses, mainly: fibromyoma, abdominal pregnancy with dead fetus, papilloma of the ovary, etc. Several X-ray pictures were taken and these showed no evidence of a fetus. Arrangements for a laparotomy had already been made. Dr. Boldt, through whose kindness the case was referred to me, for observation and treatment, then diagnosed the case as one of pregnancy with hydramnion.

My examination revealed the following:

The patient was short and corpulent (180 lbs.) and of healthy appearance; abdoman large, distended, with very thick fat cushions. A large globular mass reaching to within a hand's breadth of the xyphoid could be mapped out. The tumor had a cystic character with irregular thickened portions of its wall here and there, particularly in its lower right pole. Other irregularities could be made out through the cyst wall. These were freely movable, and I took them to be fetal parts. The tumor mass seemed to be continuous with the cervix. A uterus distinct from the mass could not be differentiated. The ovaries could not be palpated. Fetal heart sounds could not be elicited, nor could uterine contractions be excited. External genitals, vagina and cervix were suggestive of pregnancy. Colostrum was present. The acetone test[1] for pregnancy was positive.

Diagnosis: Pregnancy with hydramnion associated with a moderate degree of fibrosis uteri.

Following the date of my examination symptoms of intra-abdominal pressure grew gradually more and more severe. On Nov. 7th, one week before calculated date of labor, I decided to terminate pregnancy. On the evening of that date, I introduced a Voorhees bag into the uterus. After the

[1] ACETONE TEST. This test is based on the principle that when carbohydrates are excluded from the diet, acetone appears in the urine sooner or later. According to Van Noorden, pregnant women show this effect more readily. The acetone test may be made as follows:—Give the patient at 8 A. M. for breakfast, a cup of tea with two lumps of sugar and one roll. Meat and vegetables may be given for lunch, but no carbohydrates. At 4 P. M. the patient empties the bladder, and at 5 o'clock urine will show the presence of acetone.

lapse of seven hours, no labor pains having set in, the bag was removed. On the morning of the 8th, a larger bag was introduced and vagina was packed. After six hours no pain developed. I then gave a hypodermic of 1 cc Pituitrin. Fifteen minutes thereafter strong and frequent labor pains ensued. Three hours after injection packing and bag were expelled with complete dilatation of the cervix. Fetus in transverse position. Rupture of membranes, followed by combined version on head. Many liters of amniotic fluid escaped. Fetal heart sounds now became very distinct. An hour later, pains becoming weak and of short duration, patient received another injection of Pituitrin; good result. Seventeen and a half hours after the onset of labor, the fetal head was still at the pelvic brim, but owing to development of temperature (102.5) high forceps was resorted to. Extraction of a living baby weighing 11 lbs. 12 ozs. without difficulty. Pituitrin again administered; no atony; no hemorrhage. Lying-in period fever free and uneventful.

Patient discharged November 21st, uterus large and nodular.

The deductions that may be drawn from this case are:

1. Absence of positive signs of pregnancy is not sufficient to exclude the diagnosis of pregnancy.

2. In Hydramnion the fetal heart sounds are often absent and the fetus can be palpated only with difficulty.

3. The X-ray picture is valueless in hydramnion and may even be misleading, because experience has shown that amniotic fluid is opaque to the X-ray.

4. In doubtful cases of pregnancy in the latter months the acetone test is of positive value.

5. Pituitary extract is a very useful agent in the induction of labor when combined with a Voorhees bag. It is also of value as a prophylactic against atony and hemorrhage.

FIBRO-ANGIOMA OF THE ORBIT.

BY

OTTO SHIRMER, M. D.,
New York City.

The patient presented, 30 years of age, was operated on one year ago for retrobulbar tumor. Although an absolutely healthy man, he complained of impaired vision of the right eye and occasional diplopia for 6 months and for the past few weeks of increasing protrusion of the eyeball.

There was exophthalmos of about 6 mm., the eye being protruded forward and a little outward, that is, in the axis of the orbit. The eye could not be pressed backward, no pulsations could be felt, no murmurs could be heard. The mobility in every direction seemed to be perfect; nevertheless there was diplopia in the periphery upward and outward. Vision was reduced to ⅓ but the visual field was normal. There was moderate papillitis.

Though X-ray pictures showed no tumor and though no tumor could be felt, there could be no doubt that there was a retrobulbar tumor situated within the muscle funnel, not starting from the optic nerve. Whether it was benign or sarcomatous could not be made out with certainty. There certainly was a chance to save the eye and I therefore decided upon the temporary resection of the temporal orbital wall by the Kroenlein method.

On March 4th, 1911, a big flap was formed containing skin, muscle and bone. This flap being turned outward I gained access to the apex of the orbit where I felt a round smooth, rather firm tumor of nearly the size of a walnut. It was attached by a small pedicle to the inner orbital wall. I succeeded in detaching it from its sur-

roundings and delivering it in toto. The orbital wall was replaced and the wound sutured. The recovery was uneventful.

To-day the scar is scarcely visible, the eye is in a normal position, its mobility nearly perfect, the sight normal. There is no danger of a relapse as the tumor turned out to be a fibro-angioma.

THE ANNOTATOR.

Infection and Immunity.[1]—G. P. Mueller conditions infection in the following manner:

1. The organism must enter its host in sufficient numbers.
2. It must enter by an appropriate avenue.
3. It must be virulent.
4. The host must be receptive.

The avenue of infection often determines its severity and type, thus the pneumococcus thrives principally in the pulmonary tissues.

Virulence is a variable quality and depends upon the inability of the microorganisms to produce toxins. The more virulent the microbe the sooner will the host succumb. The very young and the very old are most susceptible to infection.

Hunger, thirst, heat, cold, alcohol, fatigue predispose to infection and so do certain diseases especially those of the kidney, liver and heart.

Certain tissues have a local susceptibility like the lungs, bones and joints in tuberculosis. The infection-producing microorganisms are fission fungi, the most important of them, with reference to wounds, being the streptococcus, staphylococcus, colon bacillus, bacillus of Welch, and tetanus bacillus.

Immunity consists in unusual or complete resisting power to infection and may be natural or acquired.

Natural immunity depends (1) upon the protection afforded by the surfaces of the body, (2) upon internal protective agencies, including the mechanical, bactericidal and phagocytic influences in inflammation, and the protective properties of serum and plasma. Acquired immunity may be active or passive and depends (1) upon increased anti-bacterial property of serum and plasma, (2) upon increased phagocytic power of the cells, depending on the formation of opsonins, (3) increased antitoxic power of serum or plasma, (4) habituation of the cells to bacterial poisons. Active immunity may be acquired from infection or artificial immunization; passive immunity is obtained by means of protective or curative serums.

Local immunity is due to the adequate or inadequate supply of blood in a part; an illustration is the use of hot fomentations in treating infections.

From the practical standpoint immunity may be regarded as bacteriotropic and phagocytic.

In bacteriotropic immunity the cells of the body are stimulated to defense, this being the basis of Ehrlich's side-chain theory, when toxins, albuminous substances, cells, or bacteria are injected into or invade the body. In immunity by phagocytosis we have (1) a ferment or nutritional action, (2) resorption of useless cells, (3) protection against bacteria. With all the progress which has been made the study of the processes of immunity is still in its infancy, and our greatest protection seems to lie in the use of preventive measures.

[1] *International Journal of Surgery*, January, 1913.

Vasectomy and Public Right.[1]—The editor thinks it is well to discuss freely the question of the protection of society by the resection of the *vas deferens* in criminals, and that this is quite as important as the formation of societies for improvement in mental hygiene.

Indiana has carried this subject beyond the experimental stage, and the operation is now one of daily routine in her state institutions.

It is now unnecessary, at any rate in Indiana, to explain the operation, its harmlessness and the public benefit which has been derived from it.

Everybody in Indiana admits its value. It is believed that a section or a com-

[1] *Medical Review*, January, 1913.

mittee on eugenics is now called for in every state medical association.

Such a section being equipped to answer, or at least to discuss all questions bearing upon eugenics would be instrumental in securing definite legislative action.

The matter should be agitated in every state until legislation has everywhere been enacted for the adequate protection of the race.

The excuse which is made for bringing forward a matter which has been freely discussed in recent years and about which there seems to be no difference of opinion in the minds of those medical men who have not been so occupied with other matters that they could not give the subject a few consecutive thoughts is the presence in the human mind of the quality of inertia which with reference to this particular subject will demand a whip and spur for months to come, possibly for years.

Effect of Pasteurization of Milk on Babies.[1]—J. L. Morse made a collective investigation upon this subject by means of a series of questions which were replied to by fifty members of the American Pediatric Society.

He finds, however, that he cannot draw positive conclusions from the evidence which was obtained whether babies fed continuously on pasteurized milk thrive as well as those who have been fed on raw milk, or whether the continuous use of the pasteurized milk predisposes to the development of nutritional diseases. There is evidence enough, however, to show that if the continuous use of pasteurized milk is injurious to babies it cannot possibly be as injurious as bacteria. It would therefore seem desirable to pasteurize all milk except that which is known to be clean.

But on the other hand there is sufficient doubt as to the harmlessness of pasteurized milk to justify the evidence of pasteurization *when the character of the milk warrants it.* The milk problem, like the poor, is ever present with us.

The character of much of the milk which comes to the homes of the poor is so notoriously bad and harmful that as between this and pasteurization a great gulf is fixed, as the scriptures say, and the evidence is decidedly to the advantage of pasteurization.

Did the writer investigate the data connected with the Strauss milk stations and the influence of the pasteurized milk provided by them upon the babies of the east side poor in New York?

[1]*American Practitioner*, February, 1913.

The Day Camp for Tuberculosis.[1]—A. P. Francine states that the day camp where tuberculous patients can remain the entire day in the open air apart from the squalor of tenements and allies, and under medical supervision has been tested in Boston, New York and Philadelphia.

The author's paper relates to the latter city and states that the splendid sanatorium facilities of Pennsylvania permit any tuberculous subject who applies to go to a state sanatorium for a preliminary course of education, segregation, training and cure.

But those who are curable cannot remain permanently at such a place and the aim of those who have the subject in charge is to follow patients after returning home from a sanatorium and finish the work, if possible, which was thus begun.

Unfortunately this plan will not always work out well on account of home surroundings which cannot be improved, for various reasons. It is for this large group of return cases, as well as for others, that the day camp of which the author is writing was opened two years ago upon a pier on the Delaware river front in Philadelphia. It has now been in operation two seasons, being open daily from May until November. It is suitably furnished with easy chairs, nurse's office, toilet room and other necessities, and the patients remain there from 9:00 a. m. to 5:00 p. m.

A pint of milk with bread and butter is served to each of them at 10:00 a. m., and a hot lunch at noon. Car tickets are given to those who need them for transportation to and from the camp. Regular attendance is required and each patient reports to his physician or dispensary every two weeks, his home being supervised by the district nurse.

[1]*New York Medical Journal*, February 22, 1913.

Thirty patients per day were thus accommodated, and ninety-one have been treated in all. Most of them have been regular in their attendance and they have gained in weight and strength in almost every instance.

Of the seventy-three patients who stayed more than one week, fifty-eight showed improvement, twenty were able to return to work, and forty-four were placed in sanatoria for further treatment.

The development of this idea is destined to be one of the most important factors in the settlement of the tuberculosis problem. If anything is definitely settled in connection with the treatment of tuberculosis it is the indispensability of a constant supply of pure air and fortunately this may be obtained even in our great cities, where most of the tuberculous patients are to be found, no less than in the country.

ETIOLOGY AND DIAGNOSIS.

Fat Hernia.[1]—1. A true fat hernia is a protusion of a preperitoneal fat mass or lipoma through one of the ordinary hernial apertures. It follows the course pursued by an ordinary hernia.

2. When a peritoneal process is located within such a hernia, it is always difficult to find, because of its small lumen. Such a process when present (in a minority of our cases) is secondary to the fat hernia and probably results from traction. The ordinary contents of a hernia are not found and can hardly enter into the narrow serous tube within the fat mass.

3. The onset of a fat hernia may be sudden, like that of the ordinary type of hernia with preformed sac. In three of the cases above recorded the history of sudden onset is very clear, and the proportion of cases too large to be charged to inaccuracy of observation on the part of the patient.

4. The diagnosis of fat hernia is far from easy. Although not reducible they are capable of a seeming reduction in a fair proportion of cases.

5. An impulse on coughing can usually be obtained, since the hernia can receive the brunt of the increase of intra-abdominal pressure like an ordinary reducible hernia.

6. In very rare instances symptoms of strangulation may result from torsion of the fat hernia.

7. The treatment of fat hernia differs in no way from that of the ordinary type. It is probable that these cases will only be recognized as fat hernias during the operation, wherefore measures for radical cure will be instituted such as those in vogue for the ordinary forms of hernia.

[1]J. Ransohoff, Cincinnati. *Lancet-Clinic*, January 4, 1913.

Heredity as a Factor in Epilepsy.[1]—The authors of this scholarly paper conclude as follows:

1. We have no conclusive evidence that alcoholism in the parents is a cause of epilepsy in the children, although alcoholism is often associated with epilepsy. It may be regarded as a concomitant of epilepsy and an additional evidence of nervous weakness. 2. Feeble-mindedness is also associated with epilepsy, and there is some evidence that it is caused by the same defect that caused the epilepsy. 3. Fitting the material to the two hypotheses, first, that epilepsy is a recessive trait that is inherited only as epilepsy, and second, that epilepsy, feeble-mindedness and insanity are due to the same defect which may appear in the form of any one of them, there is no striking evidence in favor of one to the exclusion of the other. The truth probably lies somewhere between the two. 4. While we are not in a position to say at present whether every case of epilepsy is inherited or to say in what proportion of cases it is inherited, we can say that in a large proportion of cases there is some nervous defect on both sides of the family. These defects may be epilepsy, feeble-mindedness, insanity, extreme nervousness, migrain, alcoholism, sexual immorality and lack of moral sense.

[1]E. Flood, M. D. and M. Collins, M. D., Palmer, Mass. *American Journal of Insanity*, Jan., 1913.

TREATMENT.

Vaccine Therapy in Europe.—Inquiries while in Europe, says a writer in the *Bacterial Therapist*, indicate that bacterial vaccines in the treatment of infectious diseases are not being as extensively employed as in this country. Several conditions appear to be responsible for this: The European physician, in accord with the prevailing sentiment of the people is very conservative and therapeutic nihilism being strongly represented among them, naturally no material reliance is placed on any remedy. Where bacterins are employed it is usually of the autogenous variety in exceptional selected cases. Wright's early contention that the opsonic index is an essential means as a guide to their administration created a sentiment among physicians on the Continent that this treatment is too technical for practical application. The "fear of the negative phase" is also a deterring factor. The prevailing sentiment of doing things

to conform to recognized authority tends toward following certain routines. A remedy extensively and successfully employed by an American physician in good standing does not constitute authority to a German physician. Stock vaccines not being regularly in the market, such ordinary ailments as colds, bronchitis, bronchopneumonia, pneumonia, rheumatism, otitis and many other diseases are not treated with vaccines.

In England vaccine therapy is more generally resorted to than on the continent, but even here this method is used in the exceptional case rather than the rule.

Stock vaccines are on sale in leading drug stores, but comparatively small sales seem to be the rule.

If conditions in Rotterdam are a fair index as to the use of stock vaccines in Holland, it would appear that they are seldom used. Inquiries at a leading drug store revealed the fact that the concern was not familiar with these preparations. Nor were any stock vaccines to be found at any of the drug stores.

The prevailing sentiment of doing things by authority permeating the entire people seems to be an element that tends toward conservatism and a drawback to progress. A leading Rotterdam physician said he had no trouble in controlling his patient, whatever treatment is prescribed being as a rule religiously followed out. This makes conditions pleasant for the physician, but a critical attitude of the patient, as found in America, no doubt has a tendency to make the physician alert and progressive.

A chemist, living in Frankfort, related a personal experience. His children were sick with bronchitis and bronchopneumonia. After patiently waiting for several weeks for improvement to take place, the attending physician was requested to give a regular stock vaccine, of which the chemist had some on hand. The physician refused to give them because he was not familiar with the remedy, and if their administration should be followed by the favorable conditions ascribed to them the symptoms of the disease would be masked in such a way that the natural course of the disease could not be followed.

Drugs no doubt mask symptoms, causing apparent improvements while conditions are actually growing worse, but where bacterins are used no drug effect is obtained, the improvement observed being a real beneficial curative effect from the immunizing response to the vaccine inoculation.

Contraindications to Radioactive Therapy.[1]—Which one of the indications that may be derived from previous experience with radioactive therapy will stand the test of future empirical and theoretic criticism, cannot naturally be reviewed as yet, says Von Noorden in an exhaustive article on Radioactivity. However certain contraindications can even now be formulated. I will mention them here only briefly and add that I support myself essentially upon the experience of my clinic:

1. Conditions of cardiac weakness of every kind.
2. Neuroses of the vegetative nervous system, especially the sympathetic and severe neurasthenia.
3. Morbus Basdowii, diabetes, febrile conditions.
4. Tendency to hemorrhages of every kind, especially menorrhagia, metrorrhagias, hemoptysis, hemorrhagic diathesis, hemophilia.
5. Far advanced affections of the erythroblastic and the leucoblastic systems. (In contrast to early stages, which are excellently suited to this treatment).
6. Cachexias of every kind (pronounced unfavorable influence on cancerous cachexia).
7. Senile marasmus. (In contrast to the beginning phenomena of old age, which are excellently suited to the treatment).

[1]Dr. Carl Von Noorden, *Med. Record*, Jan., 18. 1913.

GENERAL TOPICS.

Poverty Due to Tuberculosis.—That tuberculosis is responsible for one-third of the sickness that reduces families to dependency is indicated by a study just completed by the New York Association for Improving the Condition of the Poor. In a statement sent out to-day the association says that the facts obtained also indicate that this disease is the cause of over 8 per cent of the destitute homes in New York City.

Having determined by investigation that sickness is the chief cause of dependency among families in its care, the association recently began an inquiry to learn which diseases are most prevalent among dependents so that it can plan more intelligently its preventive work. The 6,565 families which sought the association's aid between October 1, 1911, and June 30, this year, were selected for the study. It was learned that of these families 1,605 were forced to seek aid because of illness. In some the income had been hampered or cut off by the illness of the father or mother. In others sickness of one or more members had exhausted savings and heavily taxed earnings.

Tuberculosis was the disease found in 555 or 34 per cent of these families. Rheumatism forced 187 other families into dependency. The remaining were classified as follows: Illness attending child birth 161, kidney and heart disease 156, anemia 156, operations resulting from injuries 106, pneumonia 99, children's contagious diseases 48, paralysis and epilepsy 48, eye and ear diseases 45, cancer and tumor 44.

"The results of this study plainly show the urgent necessity for more adequate care of tubercular patients, especially those in impoverished homes," said General Agent Kingsbury, "They also demonstrate how important is the prevention of the disease in the campaign

against poverty. The facts justify the effort now being made by the association to devise a practical plan for the treatment and cure of the disease in the home. If the three-year demonstration the association is making in its Home Hospital in the East River Homes is successful, a practical means of wiping out the disease in the tenements will have been effected. As the hospital has been in operation only since last March, Dr. Linsly R. Williams, the medical director, believes it is too early to determine with any degree of accuracy what effect adequate home treatment under proper conditions will have upon the disease. However, the fact that no unfavorable conditions have been noted thus far leads him to believe that the association will before long be able to offer a more speedy and economic plan of wiping out the disease than is now employed. Moreover, the association is, for the first time in the history of relief work in this country, providing on a comprehensive scale, adequate relief, care and treatment for tuberculosis in the tenement homes of the poor.

"Some plan of effective home treatment must be found, for it will be many years before there will be enough hospitals and sanatoria to accommodate all tuberculosis patients, despite the excellent work now being done to meet demands. A comparison of the hospital provisions in the United States with the needs and growth of population shows that the demand is increasing twice as fast as the supply."

SOCIETY PROCEEDINGS.

THE EASTERN MEDICAL SOCIETY OF THE CITY OF NEW YORK.

The stated meeting was held March 14th, 1913, the President, Dr. Joseph Barsky in the chair.

The Executive Session was omitted as a mark of respect to Dr. Archibald E. Isaacs, who died on the morning of March 14th, 1913.

A. *Presentation of Cases.*

A Case of Stokes-Adams' Syndrome, A. A. Himowich, M. D.

B. *Paper.*

The Neuroses of Childhood—Their mode of Development and Their Treatment.
Benjamin Rosenbluth, M. D.

Discussion by Drs. Onuf and Neustadter.

C. *Lantern Slides.*

Photographs in color (Lumiere process) of rare specimens taken from autopsies at the City Hospital.
Orrin S. Wightman, M. D.

Pathological Exposition. John H. Larkin, M. D. (Pathologist to the City Hospital.)

Adjournment.

Banquet to Dr. William J. Robinson.

Over two hundred physicians, writers, editors and others prominent in the life of the city assembled at the Hotel St. Denis, Friday, March 7th, at the banquet tendered to Dr. William J. Robinson by his friends and admirers, in recognition of his work as physician, editor, writer, lecturer, and publicist, and in celebration of the tenth anniversary of the foundation of one of his journals, *The Critic and Guide*. Dr. A. Jacobi, President of the American Medical Association, acted as Toastmaster, and in his usual happy vein told that he read *The Critic and Guide* as religiously as a religious man reads his Bible and that he hoped he would be able to read it for fifty years more. Letters and telegrams were read from physicians and editors in many other cities.

In the toasts that followed, Dr. James P. Warbasse spoke of the guest of honor as the iconoclast, clearing medical journalism of past traditions and abuses. Dr. James F. Morton, Jr., spoke of his work for eugenics, commending his campaign against prudery as one carried on not for sensational purposes but to gain a serious hearing for questions vitally affecting the race. Dr. H. Edwin Lewis told some interesting history of the days when the manufacturers of unethical products offered unlimited financial backing to anyone willing to bring suit against the Doctor for his exposures of their products. Mrs. Anita C. Block, woman's page editor of *The New York Call*, hailed Dr. Robinson as the champion of womanhood and the new type of physician. Dr. A. L. Goldwater spoke of him as the physician and Mr. Edwin C. Walker as the social reformer.

Toasting Dr. Robinson as "The Citizen," Borough President McAneny said: "A man who plays the part of Dr. Robinson is not only a citizen but a good citizen. He has dealt with those things which before long will be matters of discussion in many and many a place. He has dealt with those things that we as a city must deal with if we are to raise up the right sort of people. The city, if I may so put it, has been the greatest prude of all in dealing with those things, and when we are thoroughly awakened the fruits of his activity will be seen in the City of New York. I regard him as a pioneer who is blazing the way, and where he has gone many and many a man and woman will follow and push his work to its completion. The City of New York values the citizenship of such a man as Dr. Robinson. Long may he continue to be with us and to aid in our city and social work."

In his response, Dr. Robinson referred to his gratification at the fact that among those present there were so many who did not agree with or endorse all his opinions and teachings, and described the problems besetting a radical medical editor.

197

American Medicine

H. EDWIN LEWIS, M. D., *Managing Editor.*
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.
Copyrighted by the American Medical Publishing Co., 1913.

Complete Series, Vol. XIX, No. 4.
New Series, Vol. VIII, No. 4.

APRIL, 1913.

$1.00 YEARLY in advance.

Careless dispensary methods are now under fire, but we hope that the reformers will consider whether some of the institutions had better be mended or ended. The dispensary is theoretically a "charity" to the sick poor, but it has long been abused by those who are neither sick nor poor; that is, by those who are not sick enough to require a physician's care and are rich enough to pay a poor doctor for his advice if they do need it. The usual argument for the dispensary is that it furnishes material for study by the inexperienced, but the charge is now made that the overcrowding utterly prevents such study and that the cases are really neglected as far as treatment is concerned. All this has been said so often in medical circles that we are surprised to find it occasioning surprise among laymen. We are more surprised still, to learn that the patients are being deprived of something to which they are entitled as a right. Charity is never a right, although civilization has progressed to the point at which it is necessary for the general welfare to restore the temporarily disabled to a self-supporting basis. No one can expect to get something for nothing, so that even here, it must be considered either as a loan to be repaid when wages again are earned or as a return for insurance duly paid for previously. Real charity can be given only to those who cannot possibly make a return—the permanently inefficient. Here too a qualification is necessary. One sided bargains are so harmful that they may be said to be non-existent in nature where no benefits are ever conferred by one organism except in return for value received. Some cases of parasitism apparently violate this law, but when we have searched carefully enough we always have found the value received, and probably will find it in all. In many ways, real charity is an economy in that it prevents far worse evils of theft, murder and callousness to suffering, so common where life is so cheap that there is no charity. Besides, the safer we make others the safer are we ourselves. Charity then is not a right of the permanently disabled, but is basically for the selfish purpose of reflexly benefitting the efficients, and it has really become an instinct in civilization. We must drop the hypocritical mask of claiming to do good that cannot possibly do good to us in return. Bread thrown on the waters always returns. We think it doesn't because we never search for it. Dispensaries, then, must be considered sociological institutions for the general welfare and not charities even in the restricted meaning here given to that word. They must be reorganized on a strictly business basis, and on lines parallel to every other public utility.

The sociologic position of dispensaries as public utilities must be considered by

the associated Out-Patient Clinics of the City of New York—an association, by-the-way, which should have come into existence long ago but which is none the less welcome by reason of the delay in its birth. In the first place dispensaries must stop their habit of creating paupers.

Parasitism is easily acquired and invariably destructive of efficiency of both helper and helped. It is amazing how long a man will remain a healthy efficient worker when he knows he must, and how soon he sinks into inefficiency when the prod of necessity is removed. This is an old story and we must profit by it. Whenever we confer unpaid-for benefits we invariably strike a deadly blow at the recipient's manhood. It is highly necessary, then, to take more care to exclude those able to pay for advice and to collect later from those temporarily disabled. This is a large order, to be sure, and not likely of fulfilment, but it is the objective point even if we never reach it. Then again, if dispensaries are such social necessities, why put them in control of the least experienced? Surely public welfare demands that the work be given to men of experience, if not the best of us, and all this is impossible unless liberal salaries are paid. All civilized nations are taking up some form of public relief for the sick and injured, and perhaps we are to approach the problem through the medium of our dispensaries rather then by the friendly societies of Great Britain or the compulsory insurance of Germany. With fewer patients and with experienced paid doctors, there would be less complaint of neglected scientific material to show to students. It seems to us that the general aims of the reformers, though good as remedial measures, do not strike at the roots of the evil—the unnaturalness of the dispensary as organized at present. It is all very well to coordinate their work, promote proper standards of treatment and increase economy, but it seems futile to go on creating more semi-paupers as we surely will do with greater efficiency. Any man who applies for treatment confesses thereby to inability to care for himself and the welfare of society demands that we find out why he is financially disabled. Every case must be followed up, with a view of prevention rather than cure. This field for social workers is of such enormous extent that it almost appals one against entering it—fully one-tenth of mankind will require study, if we are to believe some investigators. Would it not be well to restrict the number of dispensaries, and thus prod a certain percentage of patients into consulting a family physician? We put out these ideas not to discredit dispensaries entirely, but with a view of eliciting suggestions as to whether we are drifting with the present enormous equipment, and whether or not it is not time to class them as public utilities of some kind, and not solely the resort of paupers. They seem to be drifting to something like the status of our public schools. Society has almost entirely taken over the parental duty of education and though we can well doubt whether it will ever take over the treatment of adult invalids, we cannot doubt that aid to the temporarily helpless is already a social duty and that we seem destined to render aid through the medium of dispensaries rather than panel doctors or insurance. If this is so, the stigma of pauperism disappears with the realization that the service rendered is paid for or is a mere loan. The profession is tired of being called on to render free service to the poor—no lawyer is ever expected to defend a low criminal gratuitously—so

why should he be paid for legal service and we be compelled to render free medical service to the same man? Dispensaries surely do need reformation.

"**Imitational Suicide**" is again attracting attention as though it were something mysterious. A person who has a suicidal mania, would not kill himself at all, if he did not know how. Consequently the act is accomplished by means well known to the sufferer. Violent death has always been such a common occurrence that everyone knows how to kill himself, and the means selected depend upon the sufferer's education and environment. No one hangs himself if he knows of easier ways. Hence it often happens that such a person will adopt a plan to which his attention has been recently directed. That is, publication of details of suicides does not create the mania in others, but as a rule merely determines the manner of executing the morbid impulse. They are devoid of judgment, of course, and frequently go about the matter in a most illogical way—luckily sometimes defeating their own aims. The idea that sane persons ever commit suicide is about given up. We invariably find some nervous or mental disturbances, with more or less suffering, which destroy judgment sufficiently for us to consider the person unbalanced, and not sane enough to repress a desire which many a sane person entertains for a few fleeting moments in the agonies of great disappointments, afflictions and humiliations. There is a possibility of course that an insane sufferer contemplating suicide may have his intentions strengthened by reading of suicides, but we doubt whether this leads to the act in many cases which would have otherwise resisted the impulse. Some cases of self-destruction are not intentional suicides, by-the-way. The insane, for instance, not infrequently kill themselves jumping from windows, to escape from some imaginary dreadful danger about to overtake them in the room. That is, they are trying to save themselves, or are actuated by some other delusion not connected with suicide in any way. These are not cases of "imitational suicide," indeed there is little evidence that suicides ever imitate prior ones as the result of suggestion except in the way of suggesting means to an end already determined upon. Newspapers are not responsible for these deaths as some writers assert.

"**Speeding-Up.**"—Working along with his partner, the "efficiency engineer," the speeder-up has managed to obtain from the factory worker a larger output in the same period of time. This is done by eliminating the so-called superfluous motions of the arms and fingers, i. e., those which do not contribute directly to the fashioning of the article under process of manufacture. Hailed at first as a great reformer, with joy by the manufacturer and with a sort of pride by the worker, the speeder-up is destined soon to become anathema to the latter, while the employer will ere long reluctantly have to admit that there has been something wrong in the premises. Just as the wise employer now finds it cheaper by welfare work to conserve the life and health of his workmen, so will he find it more economical in the long run to relax the newly found speed.

The reason is of interest to the physician because it is purely physiological.

The movements thought to be superfluous simply represent Nature's attempt to rest the strained and tired muscles. Whenever the muscles of the arms and fingers, or of any part of the body for that matter, undertake to do a definite piece of work, it is physiologically imperative that they do not accomplish it by the shortest mathematical route. A rigid to and fro movement is possible only to machinery; muscles necessarily move in curves and that is why grace is characteristic of muscular movement and is absent from a machine. The more finished the technic of a workman and the greater his strength, the more graceful are his movements, and, what is important in this connection, *vice versa*. A certain flourish, superfluous only to the untrained eye, is absolutely characteristic of the efficient workman's motions.

"Speeding-up" eliminates grace and the curved movement of physiological repose and thus induces an irresistible fatigue, first in the small muscles, second, in the trunk, ultimately in the brain and nervous system. The early result is a fagged and spiritless worker of the very sort that the speeder-up's partner, the "efficiency engineer" will be anxious to replace by a younger and fresher candidate, who in his turn will soon follow his predecessor if the same relentless process is enforced.

It will always be necessary to consider workers as human beings, and charity and moderation in the exaction of results will usually be found the part of wisdom, as representing a wise economy of resources. This scientific charity, however, is something quite apart from the moral effect on a personnel of due recognition of their long service and of the loyalty which is likely to accompany it.

The Newest Mind Reader.—Hugo Münsterberg, the psychologist, has rendered an invaluable service to sanity and common sense by his report in the May issue of the *Metropolitan Magazine* on Beulah Miller, the Rhode Island child mind reader. Not only had the wildest reports concerning this girl's simple tricks been spread broadcast through the newspapers, but the well known credulous pests who become conspicuous on these occasions were preparing to rivet superstition in the minds of the readers of certain periodicals whose editors grant a strange and dangerous liberty to them, as well as to a few undoubted charlatans, to prance through their columns waving their gaudy banners of quackery or pseudopsychology. As Professor Münsterberg states, the ten year old heroine of this latest sensation is innocent of fraud and is no doubt delighted with what is to her an exciting game that seems to amuse a great many serious but otherwise pleasant grown-ups. Her programme is the usual one of reading playing cards placed face downward on the table, calling out the dates on coins, and spelling out messages written on folded slips of paper; all that is necessary is that her mother or sister or both should share her knowledge with the experimenter.

Dr. Münsterberg quickly discovered that the mother and sister were giving the child unmistakable signs by some sort of code, which relegated the phenomena at once to the realm of parlor magic, save that the parlor magician does not lay claim to supernormal power. With rare tact and discrimination the talented investigator alleges the possibility—he would say likelihood—that the mother's and sister's signs are given unconsciously and irresistibly owing to their

natural anxiety that the experiments should succeed. We think that fully qualified experts—members of the Society of American Magicians, for example—would leave Dr. Münsterberg here. These skeptical gentlemen would insist that the mother's code was of such disingenuous simplicity that if she desired, for instance, to indicate to Beulah the figure 3 or the letter C, she would hold three fingers down or up where the child could see them, but where they would not be likely to attract the attention of the gaping audience. Perhaps American magicians are over cynical. Physicians, however, will prefer to agree with them rather than to allow themselves to be floored by the oft quoted remark of Hamlet to Horatio, "There are more things in Heaven and earth, etc." This bit of poetry is often cited as an argument, which it is not; and there are now fewer "things" of the kind referred to than there were in the reign of Elizabeth. We are willing to admit that Professor Münsterberg is perfectly correct in his diagnosis; but if he is thoroughly familiar with the works of Hoffman, Sachs, David Devant, and especially of David P. Abbott, we cannot help wondering how he can be as charitable as he is.

The Early Detection of Insanity.—The astute Dr. F. G. Crookshank, of London,[1] has pointed out that the asylum is not the best place in which to study the insane, just as a zoological garden is not best adapted to study the nature of the polar bear. It is in his home or accustomed haunts that we must observe and scrutinize the victim of brain disorder. It is the general practitioner who has, although he sadly neglects it, the best opportunity of studying insanity, and if he is a skilled man he may have the good fortune to diagnose a case in its incipiency when there is the best hope of cure. The family doctor can best appraise the share which the routine of middle and working class life, the bitterness of social trivialities and of daily worries, the absence of contact with anything either beautiful or noble, have in formulating insanity . . . . . "the deadly wheel of suburban routine, perhaps the most joyless and petty form of existence that there is." Proper stress must be laid upon the necessity for careful physical examination of all patients suspected of insanity and a visit to the dentist as a valuable aid in treatment. Dr. Crookshank points out, with the caution of an Englishman addressing the English, that an irregular sexual life is not very uncommon as a cause of insanity in middle age and begs the therapeutist to make sure, in ordering a change of scene and habits, that the patient is freed from the temptation to such irregularity and that his symptoms be not ascribed falsely to "overwork" as a sop to the relatives or even to the patient himself.

The conception of the mind as an entity is fading, as indeed it is high time it should, from the popular as well as the professional psychology and it is frankly to the student of the brain and nerves and their disorders that we now send the insane patient. At the bottom of all insane cases, or closely allied therewith, is some physical stigma, an irregularity of the pupil, some aural abnormality, which should inevitably reveal itself to the careful diagnostician and enable him to distinguish without fail the real insane case from one which, occuring in a normal patient, is due solely and simply to overstrain and will readily respond to treatment. Not that the insane cases taken

[1]Essays and Clinical Studies, London, H. K. Lewis, 1911.

in their incipiency are at all hopeless; on the contrary, the great value of the early diagnosis by the family practitioner is that these insane patients can be treated with perfect success. If, on the other hand, their symptoms are allowed to proceed to such lengths as to become perfectly apparent to friends as well as relatives, there is grave danger of chronicity. In the great majority of cases it is best to remove the afflicted patient to a sanitarium, and never should a relative be allowed to act as nurse, for these cases demand the best of trained attendance at the hands of persons noted for self control and rigid obedience to the doctor's orders.

The lower mortality rates of women seem to prove the benefits of living at lower pressure than that forced on the bread-winner. The perils and drains of child-bearing and rearing have been greatly exaggerated it appears and as women are not exposed to the worst of the dangerous trades they suffer from fewer accidents of all kinds. In spite of the tuberculosis following their indoor employments, it seems that the other factors to which men are exposed are worse and that this disease carries off more men than women. Indeed it is said that, in England at least, the mortality rates of females are less than those of males in every decade from birth to extreme old age. We are much afraid that this is carrying the matter a bit too far, as the figures would indicate that some women never die. That is, if 100 per cent. of males die, and fewer women die in every decade there must be some left over. As far as we know, it has always been a rule among fighting animals that the males have shorter lives than the females, and that if the males do not kill each other, something else kills them. The amazing thing is the manner in which civilization has succeeded in eliminating the lethal factors, so that the two sexes are now so nearly on an equality as to length of life. Those who are alarmed at their increasing risks and envy the women, may rest assured that the trend of events is in the opposite direction, and that in time sanitation and civilization will allow both sexes about equal chances of living into a worthless stage of demented senility. Why everyone wants to live that long is one of the things nobody knows.

The misuse of statistics is best illustrated by the remark imputed to Walter Bagehot, the mathematician:—"there are three degrees of deception, the positive or lies, the comparative or damned lies and the superlative or statistics." In the first place, a great blot on the medical profession has always been the manner in which we report and emphasize facts favorable to our works or theories, and minimize or actually suppress facts which prove us wrong. Sad experience has taught all older physicians to doubt figures published by partisans or opponents and to wait patiently until some judicially minded person takes up both sides carefully weighs the evidence and decides exactly what the facts do prove. No research work is possible without some definite aim and this necessitates some kind of a preliminary hypothesis based on what is already known. Minor discoveries are sometimes stumbled upon by men who have not even had their eyes open, but the great work of the world has been accomplished by idealists. It is only too true that a man with a theory can always find some facts to support it. The wonder is, that so many men are big enough to acknowledge adverse facts when found and then modify their

theories to account for the new. This is the true scientific spirit, and it is true that no theory has ever proved fixed. Every scientific law is in a state of constant flux. Sometimes the changes in centuries are infinitesimal to be sure, but as a rule a decade or two makes marvellous modifications in our interpretations of phenomena. We make these remarks now, to warn the profession against a too hasty acceptance of some of the current scientific work until it is assured that no facts are suppressed. Under no circumstances should we accept statistics on their face value for we will be trebly deceived. Nor should we allow them to modify our practice until we know exactly what they do mean; otherwise we will injure both our patients and ourselves.

Lead poisoning has hitherto been considered by physicians as largely unpreventable in the case of certain classes of lead workers. Of course we have known that painters can generally prevent it by extreme care as to cleanliness, but those who work at trades in which lead salts float in the air as fine dust were considered somewhat in the light of martyrs to modern society's need of immense quantities of lead and its combinations. We are therefore extremely grateful to the American Association for Labor Legislation for calling attention to the fact that these deplorable cases can be largely prevented by proper methods of management in the factories. The workers themselves seem to be too ignorant or stupid to appreciate the dangers and the manufacturers, like too many of their class, are either callous to the risks which they themselves run as well as the workers, or they are really ignorant of preventive means. It is useless to charge them with the suicidal policy of refusing to adopt means which will save their own lives. It surely is one of the duties of the state to step in and regulate the trades which are making public burdens of so many workers. Every day sees one or more men transferred from the productive class to the great body of the helpless who need personal attendants. We are informed that where these industries are under strict sanitary supervision and control by law, as in Germany and England, the number of cases of plumbism have been enormously reduced—practically eliminated because the few cases which do occur in spite of the utmost cleanliness, are detected early and prevented from becoming absolute wrecks. The association does not advocate laws which would in any way hamper or prohibit such industries, but merely to make them safe to the workmen. Nevertheless it would be wise to find out if the proportion of lead used in many trades could not be greatly reduced or the metal replaced by something less deadly. We use such enormous quantities of lead, as in modern enamel ware for instance—that it seems impossible now to find a substitute, but equally impossible things have happened. We ought not to go on sacrificing a certain number of lives every year, preparing society's needs, and it is one more illustration of the growing need of public control over public health. Those who are worrying over the increasing irksomeness of sanitary restrictions, should realize that the irksomeness is merely newness, for none of the rules are the least irksome after we get accustomed to them. There will be more rules every year and the result will be increasing happiness, health and longer life, as well as lessening of public burdens. We surely do need a better organized health

department in every state as well as at Washington.

Recent criticisms of the public school curricula seem to indicate a fairly unanimous opinion that too much is attempted in the lower grades. For this crumb of comfort we are profoundly grateful. There is no question of course that our schools are doing most excellent work, and the critics recognize that fact. Nothing human is perfect and the suggestions to remedy imperfections in this matter are in a kindly tone of friendliness to the teachers who are doing so well. The critics need a little criticism themselves for they do not sufficiently emphasize the fact that in the grade schools the work is often way over the little immature heads of the pupils. The brain requires many years to develop and it is a wise provision of nature that the physique is also weak until judgment is fairly good. Otherwise it would be a wild world with its irresponsible but large strong children. Now it so happens that the large majority of children must go to work as soon as they are large enough to do something to help support the family. It is an unhappy fact also that they are anxious to stop because they cannot understand the lessons. They feel beyond their depth and instinctively turn to a firm foundation of motor activities. Trade schools keep some a little longer, but most of them, for lack of thinking material, are destined to be hewers of wood and drawers of water. Whether they should be retained any longer is doubtful, as they are not capable of much intellectual training. The teachers in the grade schools are sadly handicapped by the fact that most of the pupils must leave at the very time real education is possible—the training of judgment, will and inhibition. All three of these exist at a very early age, to be sure, even a new-born infant shows signs of their rudiments, but they are not strong until the high school age. We are very much pleased, therefore, to see the movement growing to exclude high school studies from the grade schools. Particularly in mathematics do we find attempts to teach things which are hopelessly beyond the child's capacity. There has been a great improvement from the time when tots of nine or ten were solemnly drilled in fractions, though not understanding any of the operations so painfully performed, but there is still room for more improvement. Memory is drilled and strengthened no matter what is taught and there are some few historical facts which even babes should know, so that a little geography and history might go hand in hand from the beginning, not forgetting the fact that the lower grades are but little better than nurseries to relieve the mother a few hours a day. Those who believe in copying everything German should be informed that the long school hours for children there are for the same purpose as a creche or kindergarten nursing. It was a stroke of genius to utilize these nurseries to let the children hear and repeat good language and proper pronunciation, incidentally learning a few outside facts with the reading and writing exercises. Let our psychologists speak up more, so that our grade schools will be considered a mere preparation for the real education which is to be obtained in the higher schools and shops. If the grade schools can also train the motor apparatus so that those destined to go to work can earn a living sooner than by memorizing some geography and history, they will become ideal.

MEN AND THINGS.

Dr. Friedmann may be honest. His intentions may be of the best. His professional ideals may be of the highest. He may care nothing for money. He may have a great and noble mission which he aims to fulfill for suffering humanity. He may be anxious to demonstrate the efficiency of his remedy. Finally, he may be all—as a man and as a physician—that his supporters claim that he is. But one thing is certain, if he had deliberately gone to work to repudiate the good reputation and character given him by his friends, and justify the suspicions of his bitterest enemies, he could not have chosen a more consistent course than the one he has followed during the past month. It is needless to refer in detail to the restless activities of Dr. Friedmann or his associates. The newspapers have supplied a faithful chronicle of his goings and his comings, and few who have followed events connected with his affairs with any degree of care, can have failed to anticipate the grand climax just announced, "Dr. Friedmann has sold out!"

But distasteful as is the subject and unpleasant as it is to devote any further thought to an unfortunate affair, respect for the American medical profession and our German confreres to whom professional honor and integrity are so dear, makes it incumbent upon us to point out with no uncertain note that if Dr. Friedmann *is* imbued with humanitarian motives, professional desires and ethical purposes, his recent manners, methods and acts have been most unusual, to say the least. It may be that Dr. Friedmann has a different way of manifesting his likes and dislikes, than the ordinary physician. Thus his sudden loss of interest in the cases he was treating under government scrutiny and equally sudden trip to Providence, R. I., may have indicated his lack of business acumen or his complete indifference to the call of opportunity. That Rhode Island was the only near-by state that would allow patients to force Dr. Friedmann to take their money was only a strange coincidence. It was certainly sad, moreover, after Dr. Friedmann had fought so hard against going to Providence that he had to remain there for so many days at the mercy of patients who in spite of his most strenuous efforts would not let him treat them until he had accepted twenty or twenty-five dollars. Report has it that Providence physicians were strangely moved by the touching spectacle presented by the crowds of patients who refused treatment until Dr. Friedmann agreed to accept at least twenty to twenty-five dollars from each person. The anguish and suffering Dr. Friedmann was forced to undergo, with money constantly being offered to him, can easily be understood.

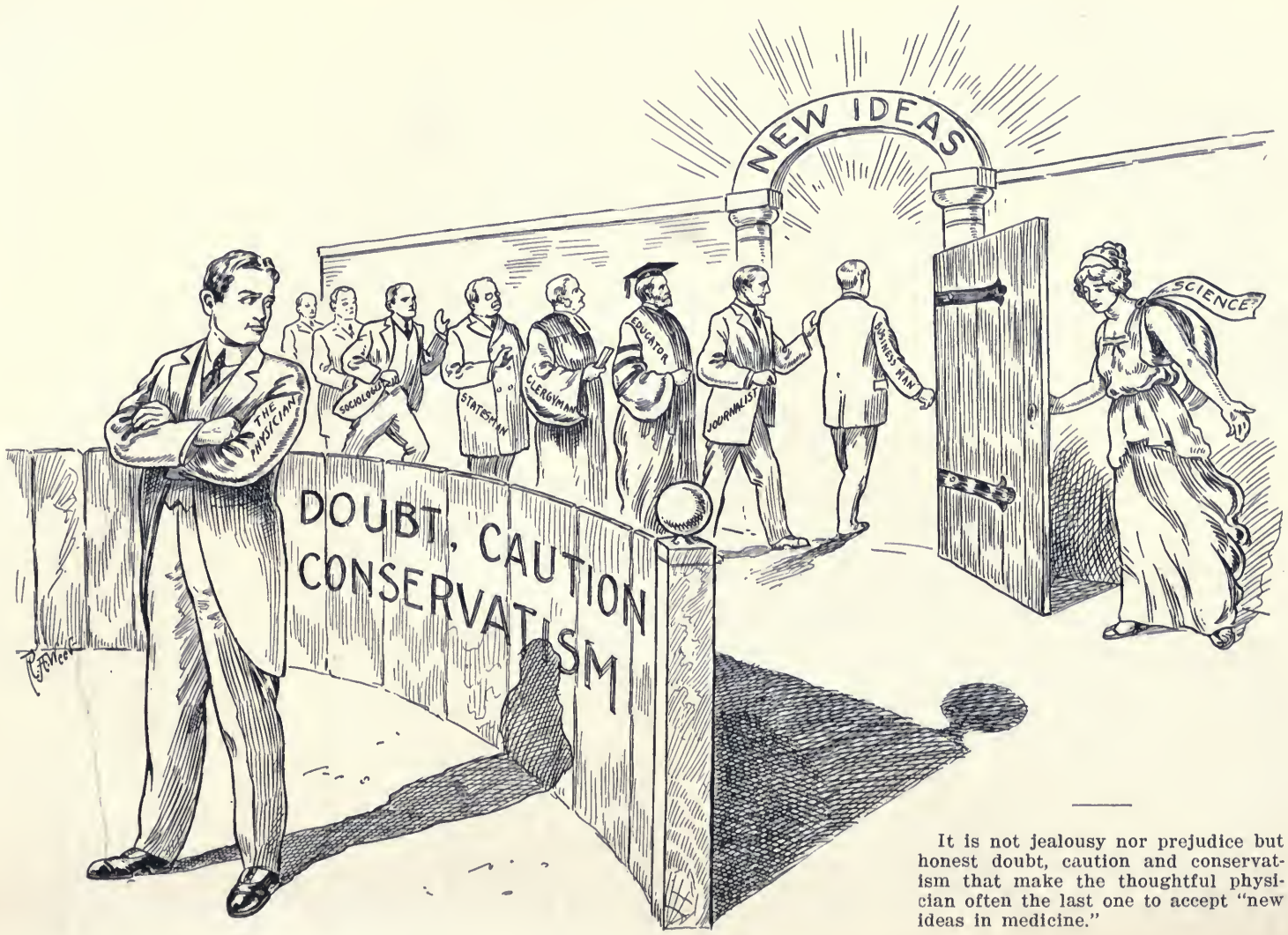
Then, cruelest act of all, Dr. Friedmann has had $125,000 cash and $1,800,000 in stock forced upon him for the American rights to his remedy, and this in spite of his repeated intention of giving it to the profession! It can be imagined what a bitter disappointment this must be to Dr. Friedmann after planning to do so much for humanity and expecting his name to go down to posterity as a benefactor of his race, to have his secret torn so ruthlessly from him, and especially by money! Sad, sad is the picture of Dr. Friedmann trying to give his remedy away, and not only being denied this happiness but being forced against his will to accept so much money for it. How commercialism must indeed dominate things in these United States of ours when an ethical physician is "kept" from giving his discovery to suffering humanity, and "made" to transfer it to a business firm for money which he abhors! "Alack, alas, that one should have listened to one's friends and trusted one's self so completely to the harsh mercies of a land where commercialism and money are so apt to get the better of one's better self!"

There's a more serious side to the Friedmann episode. Without the slightest exaggeration it can be said that no recent event—or series of events—for it has been more or less of a continuous performance since Dr. Friedmann came to New York—has given so much material to those who are ever ready to accuse the medical profession of insincerity, commercialism, premature claims, ethical hypocrisy, etc., etc. As a consequence, innocent as are American physicians in the whole unfortunate

affair, the American profession have suffered a hurt, a loss of the respect of the great American public that will take years to replace. The exceptional amount of publicity given to Dr. Friedmann is doubtless responsible to a certain extent for the widespread character of the harm done, for an enormous number of people have had a chance to follow the whole sordid affair to its recent not unexpected termination. Hundreds of thousands will repeat "I told you so," and with the positive claims, the spectacular secrecy, the loud and oft repeated protestations about serving and safeguarding the poor, and the final commercial outcome in their minds will unfortunately look upon the whole affair as a general medical proposition and not as the personal bargain of a comparatively unknown foreign medical man who has no connection whatsoever with the American medical profession. So the principal harm and injury from the Friedmann episode will come from the hasty and unwarranted deductions drawn by those who will view the whole matter superficially. Let no one understand that we are denying Dr. Friedmann's right to enter into any negotiation that he sees fit, or the laws of the land allow. What we do maintain—and this is our excuse for discussing the proposition at all—is that since Dr. Friedmann chose to make his original communication to his professional colleagues, and has sought throughout the support and corroboration of medical men, he has given us the right to expect the fulfilment of obligations voluntarily assumed and an honorable adherence to the established usages of profession. Whatever may be the final verdict of the scientific world concerning the specific value of Dr. Friedmann's vaccine—nothing definite having been determined as yet—it is a fact that this man has outraged every sense of professional propriety, and abused in the most astounding manner the courtesies and considerations extended to him for the purpose of proving the correctness of his claims and the efficacy of his treatment. Genuine sympathy is felt for those honest physicians who accepted Dr. Friedmann's protestations in good faith and worked with him with trust and confidence in the sincerity of his motives. Doubts and fears, however, that would not down, grew rapidly as Dr. Friedmann's sojourn in Providence was protracted and the last vestige of belief in the purity of his intentions vanished like the dew when the statement at last appeared announcing the sale of the American rights to his remedy!

The feelings of the Government physicians and others who took Dr. Friedmann in good faith and believed him to be absolutely sincere in seeking to prove the worth of his vaccine, can be better appreciated than expressed when they read that "Dr. Friedmann having completed the mission that brought him to America plans to return to Germany in the near future."

An apology is due our readers for having devoted so much space to a subject that, unless we are much mistaken, the medical profession will be glad to forget as soon as possible. We have tried, however, to be fair to Dr. Friedmann not only because he was a visitor to our country but also because of the wonderful possibilities to humanity if his treatment could be shown to possess the properties claimed for it. When Dr. Friedmann was attacked for his technical shortcomings and his purposes were impugned he was given an opportunity to reply in these pages. Not a word was heard from him and his attitude from first to last has been one of boorish disregard for the ordinary demands of professional comity and complete indifference to the feelings of his colleagues. He has snubbed and ignored the physicians—men of high standing—delegated by the Government to investigate the effects of his treatment. Instead of meeting obligations voluntarily assumed in New York City, he has made one or more trips to the only state where he could treat patients for pay. Repeatedly he has ignored engagements and appointments made with various physicians and hospital staffs, because, as it has later appeared, he was delayed by negotiations for the sale or distribution of his remedy. In our final effort to be absolutely fair to Dr. Friedmann we have secured a frank, absolutely unbiased statement from Dr. Irving W. Voorhees who has had exceptional opportunities for observing cases treated by Dr. Friedmann. Dr. Voorhees' remarks are friendly (See page 263) but point out the



It is not jealousy nor prejudice but honest doubt, caution and conservatism that make the thoughtful physician often the last one to accept "new ideas in medicine."

impossibility of reaching any definite conclusions or results thus far obtained.

The announcement of the sale of Dr. Friedmann's vaccine will naturally cause prompt cessation of the tests being made in public institutions and under Government surveillance. The U. S. Public Health Service cannot, of course, be placed in the position of officially testing a commercial product. It is a matter for regret that the tests undertaken with such confidence and promise by Dr. Friedmann should hold no further interest for him, for there are many who would like to know just what the turtle vaccine will or will not accomplish. In some respects it is inconceivable that a man with his reputation at stake as Dr. Friedmann's has been, could be so absolutely and completely blind to his opportunities. If he had accomplished what he said he could, he only needed to demonstrate it conclusively to win not only one of the greatest names in history but all the wealth that he ever would need. That Dr. Friedmann showed such indifference to the outcome of his tests, yet made such mad haste to consummate the sale of his remedy justifies but one—ugly—conclusion.

With this confronting us, it is too bad that a reputable firm, one known so well and favorably as the reputed purchaser of the turtle vaccine should have become associated with a project that starts out with such a handicap of suspicion, doubt and professional antagonism. The reported plan to establish "institutes"—whatever these may be—in thirty-six states and restrict use of the vaccine to only such physicians as will be licensed to administer it, will be watched with interest. Some doubt of the success of the plan may reasonably be expected, for no monopoly in medicine has ever succeeded in America up to now. It can hardly be expected, moreover, that the best men in each community will have anything to do with a remedy the use of which entails a special license. In fact we doubt very much, in the event of its ever being shown to possess specific curative or prophylactic properties, if the Government would permit such a monopoly, for it would be contrary to public policy. The more we consider the "grand finale" of the Friedmann drama—we refrain from referring to it as a comedy—the more we can appreciate Dr. Friedmann's talents. It was certainly a stroke of genius to consummate the sale of his remedy before its efficacy was established, but the real hand of the artist was shown in collecting $125,000 cash on delivery. Our only hope is that those who bought what Dr. Friedmann had to sell will find that it can stand the acid test. But like the canny Scot "we hae our doots, we hae our doots."

The dangers of being fifty years old have been investigated by Dr. Andrews, pathologist to St. Bartholomew's Hospital in London, because he too had noticed the increasing mortality of men over 55 as contrasted with the vast improvement in the death rates of all ages less than 45. According to press reports he does not seem to think it perfectly natural, that if modern sanitation saves us in youth it merely prolongs our lives to swell the rates later. Nevertheless his work has elicited some very sensible remarks about putting on the brakes at 45. We really should begin to slow down at 40 for the experience of ages proves that the physique is designed for only 35 or 40 years of strenuous use, after which some competitor usually laid us low. Now that civilization preserves us to wear out, we must not wear our prematurely. After 40 we instinctively avoid the physical activities in which we took keen childish delight, but we have not realized that the other strains were harmful. It is now known that nervous and mental labor must be progressively lessened and performed at lower pressure. At forty it may be possible to work hard ten hours a day but at fifty only seven are safe and even then there must be no extraordinary efforts either mental or physical. Exceptional men can work longer hours, but as far as we know it is always at low pressure and with an even temper—never a rush and never to exhaustion. There is no question that we live too fast at all ages but that those over 50 must go slow, eat, drink and smoke less, and get more fun out of what life is left to them. Why not teach elderly men how to play? and tell mature men not to forget their childish games? It will save doctor's bills later.

ORIGINAL ARTICLES.

PATHOLOGICAL SIGNIFICANCE OF CHRONIC SUPPURATION OF THE NOSE, THROAT AND EAR; WITH DEMONSTRATION OF SPECIMENS.[1]

BY

JOSEPH C. BECK, M. D.,

Chicago, Illinois.

Chronic suppurative diseases of the body make up a large percentage of the diseases that medical men are called upon to treat, and the methods of procedure to obtain the best results are usually surgical. Probably the larger number of chronic suppurative diseases one finds in practice are confined within the organs that are treated by the oto-laryngologist. These are also of greater prognostic importance, being located within close range of the most vital structures, as the brain, eyes and ears, and therefore possible of causing grave complications. At the same time, the chronic suppurations from the nose, throat or ear are the most neglected and considered of trivial importance by the laity and many general practitioners. A chronic suppurative sinus (fistula) from a tuberculous bone, or any other type of infection of the general skeleton—an abdominal, rectal, chest, etc., fistula, will receive more prompt attention than a chronic purulent discharge from an ear or nose. Even an acne pustule on the face will be regarded of more importance by the laity, simply because of the appearances. Again, symptoms brought about by these chronic suppurations of the nose, throat and ear are not sufficiently recognized and frequently cases are treated for other systemic affections rather than those of the special organs, and when they are treated it is done in a half-hearted and many times unscientific manner—that is, it is left to the patient himself.

Chronic suppurations of the nose, throat and ears make up more than fifty per cent. of the cases of the oto-laryngologist in the larger cities, and are in a measure to be ascribed to the lack of preventative means and early interference in their acute forms. The pathological changes that these structures have undergone make it impossible to hope for resolution, and the best that one can expect are cures by the most radical surgical procedures. Anatomical difficulties are encountered, especially in the nasal accessory sinuses, to obtain cures, even when these radical operations are undertaken, as I will show later.

It is my purpose this evening to demonstrate particularly the pathological changes of the tissues of nose, throat and ear, from patients who have been operated upon by me for the cure of chronic suppuration, to draw from them some conclusions on the treatment, and the final results obtained.

The microorganisms that we find in chronic suppurations of the nose, throat and ear are usually the mixture of the pyogenic microorganisms, as the staphylococci and streptococci, in a very attenuated form, and these are usually not the organisms which in the beginning, that is, in the acute stages, were responsible for the trouble. The purulent discharge from these cavities when examined often shows comparatively few pathogenic microorganisms, but a large flora of the non-pathogenic forms, with a great many pus cells and leucocytes. Recently the micrococcus catarrhalis has become recognized as an important factor when present in the dis-

[1]Annual Address before Eastern Medical Society, Dec., 1912.

charge, owing to its powerful destructive character, especially in bony structures.

The bacilli of tuberculosis, rhinoscleroma and actinomycosis are found less frequently than the above-mentioned varieties. In the chronic suppurative disease of the nose known as atrophic rhinitis or ozena, an organism has been isolated known as the bacillus fetidus ozena. In the chronic suppurative conditions of lues the spirocheta pallida has not been found with any degree of success, and one finds usually the mixed infection of the pyogenic microorganisms. The more virulent forms of microorganisms, as the streptococcus and staphylococcus, bacilli influenza, pneumonia, diphtheria, typhoid, meningococcus, streptococcus mucosus, spirillum of Vincentci and bacillus fusiformae may be found in these chronic suppurations, but they are few in number and usually attenuated in their virulency. The bacillus pyocyaneus is very frequently found in the discharges of the ear, since the external auditory canal is its normal habitat, and when an acute exacerbation of the chronic suppuration takes place, this organism is capable of producing very severe symptoms and reaction locally and the destruction of this organism is equally difficult.

In taking up the *chronic suppuration of the nose*, we may say that that means chronic suppuration of the nasal accessory sinuses. In former days we heard of the chronic catarrh, the so-called incurable catarrh of the nose, or chronic cold, but the development in this field of medicine has been so vast that those terms or conception of the trouble have been discarded and sinusitis is well recognized. I do not intend to dwell on the symptomatology or diagnosis of these conditions, but would like to simply say that a patient who has a purulent discharge from his nose anteriorly, or back into the throat, is in a dangerous condition so long as these complex multicellular structures are not draining freely, are not properly ventilated, and the discharges brought to a practical standstill. I say "practical standstill" purposely, since such conditions as complete cessation of every bit of discharge for all time, after having discharged for years, may be impossible to obtain, owing to certain anatomical conditions, as mentioned before. I refer especially to the ethmoid and sphenoid sinuses, since these cannot with certainty be obliterated as can the antrum and frontal sinuses. However, by the removal of the middle turbinated body and the ethmoidal curettement a large number of chronic suppurations of the sinuses are brought to a satisfactory termination. This is especially true if the pathologic changes have not transformed the mucous membrane lining of these sinuses into a pyogenic membrane, as I will show later.

One of the modern means of diagnosis of sinus disease as well as mastoid involvement is the radiogram, and I take pleasure this evening in presenting a few stereoradiograms of sinuses and mastoids, both normal and pathological. Seven years ago I presented to the oto-laryngologists this subject, and I am very glad to see the constant progress there is in the application of this means of diagnosis. For a long time the specialists were very skeptical about the value of radiograms in sinus and mastoid diseases, and this was due to the poor technic and interpretation by the average radiologist. The single radiogram will soon be supplanted by the stereo-radiogram, because it brings out better the details, and the position of the patient's head does not necessarily have to be as ex-

act. I wish to say, however, that a single radiogram is of considerable value; in fact, has some advantages as it is not necessary to make as many exposures, consequently there is less chance for the hair to fall out, and it is also less expensive.

The next important point to consider are the complications that so frequently follow neglected cases of chronic suppurative sinus disease, and I believe that the majority are preventable by an early diagnosis and proper interference. In the first place, the *partial* or *total* loss of vision. This complication is by far not infrequent and the damage goes on usually slowly and unnoticed by the patient. The manner of its development is a retrobulbar neuritis in most instances. The bony walls of the sinuses, especially the sphenoid and posterior ethmoid and the orbital wall, are destroyed by necrosis and set up a low grade of inflammation back of the eyeball, this affecting the tissues about the optic nerve and the nerve itself. A local toxemic process or an infection by the lymphatic circulation is also claimed to be able to affect the optic nerve.

Local or general meningitis as well as brain abscess of the frontal lobe, and sinus thrombosis of cavernous sinus are frequently enough met with to sound a note of warning against the permission of a chronic suppuration of the nose to continue by simply treating it as a chronic catarrh. The *systemic toxemia,* with all its accompanying symptoms of secondary anemia, is a constant complication of chronic suppuration of the nasal accessory sinuses, and the excellent response of a patient as soon as this pent-up pus is relieved is sufficient proof that this train of symptoms or complications is preventable. I have met with all these complications often enough to warrant me in saying again what I said in the beginning—that chronic suppuration from the nose is a much-neglected subject in the general practice of medicine, and should receive more earnest attention by the general men than it does.

Now, what should be the management of these cases. Local application of medicaments to the nose, in the form of swabs, douches, etc., suction treatment, general hygiene, climatic changes and systemic medication, including the vaccine therapy, are all palliative and delay what becomes ultimately necessary, namely, an operation. I will not go into detail in describing any of the accepted methods of operating, but will simply mention them in the degrees that they are usually applied until a cure is established. In a large percentage of the cases middle turbinectomy will suffice. After waiting some time, if the suppuration still continues, the ethmoidal labyrinth must be opened and curetted, the various ostii to the sphenoid frontal and antrum enlarged. Such procedure will cure an additional percentage of cases, but there still remain quite a number that will continue to suppurate in spite of all these intranasal operations, and more radical measures, namely, extranasal, must be performed. Since Professor Killian first brought out the radical frontal sinus operation many cases of chronic suppuration from this sinus have been cured, but the antrum still continued to suppurate in spite of the most radical measures, as suggested by Professor Denker, simply because it did not permit of complete obliteration of the cavity. The objection to the Killian operation is the marked deformity that remained in very large frontal sinuses, and consequently the method has been modified considerably by various methods to conserve more of the

anterior wall. These modifications have not been very successful, owing to the fact that the cavity was not obliterated and reinfection occurred. To overcome these objections of being able to obliterate both the frontal sinus and antrum, thus stopping the purulent discharge from these cavities and at the same time not have very much deformity, I have been operating by a definite method which is based on the histo-pathological findings of these cavities, as well as the experiments and experiences of a very large material of aids to obliterate bony, non-collapsible cavities. I shall very briefly describe the operation on the antrum and frontal sinus for the radical cure of the chronic suppuration by the obliteration method.

The frontal sinus is opened through the eyebrow in the usual manner, and enough of the anterior bony wall is removed to obtain a good view of the cavity and be able to remove all of the lining membrane and other pathologic tissues. The bony wall surfaces are further scraped by the curette to remove any of the possible superficial osteitis existing, and to promote more rapid granulation formation. The cavity is packed loosely with gauze strips, which are impregnated with subiodide of bismuth. The periosteo-skin incision is closed up to the inner angle, where a short piece of stiff rubber tubing, half an inch in diameter, is fixed by two stitches. This tubing reaches just within the cavity, and through it the gauze that is filling the cavity is to come out. It is also repacked through this tubing after two days, and every day after that for a week or two, depending on the amount of granulations that have formed or the size of the sinus.

The next step is to fill the cavity under moderate pressure with a mixture of bismuth subnitrate, 20 per cent.; vaseline, 70 per cent., and paraffin (120° F. melting point), 10 per cent., which is known as bismuth paste No. 2. This is done by the aid of a glass syringe that has a blunt end that will fit snugly about the tube and subsequently the opening in the skin. After the second injection of the bismuth paste, usually after about three days, the rubber tubing is removed and the lips of the wound are allowed to collapse, or a stitch may be placed and the wound closed. In the case of the antrum, an incision is made on the under surface of the upper lip, beginning in the median line, and extending opposite to the second molar. Dissecting a mucous membrane flap for better suturing purposes, the incision is carried down to the bone over the anterior surface of the superior maxilla. All the structures are retracted upward to expose a greater portion of this anterior surface and an opening large enough to remove the pathological tissue as well as all the mucous membrane lining is made. The same technic of eradication of the mucous membrane, which is really a pyogenic membrane covered with epithelium, as I will show later, is followed, and in addition the osteum maxillary and the accessory opening, if it be present, are cauterized by the actual cautery to destroy the epithelium. Should there be an opening in the inferior meatus, made previously for drainage and washing, then that too should have the epithelium burned off to assist in its closure. The stiff rubber tubing is fastened in the region of the canine fossa, and is allowed to remain in situation much longer than in the frontal sinus, since it requires much longer for the antrum to become obliterated. Great care must be exercised in the removal of the mucous membrane from the thin nasal wall of the an-

trum, especially in the region of the post-ethmoidal. To break into them may defeat the purpose of obliterating the cavity.

The rationale of this procedure of curing the suppuration is based upon the thorough removal of this so-called pyogenic membrane and completely blocking out the cavity. This unfortunately cannot be done with the ethmoid and sphenoid sinuses. In these instances we must content ourselves with as complete removal of all the cells as possible, and the removal of the anterior wall of the sphenoid sinus. This explains what I said in the beginning, that certain anatomic difficulties prevailed that prevented the complete cure of some of the chronic nasal suppurations, in spite of the most radical surgical measures we can employ.

CHRONIC SUPPURATION OF THE THROAT.

I shall confine my remarks to the consideration of chronic suppuration from tonsils and adenoids, since these make up the larger percentage of cases of chronic suppuration of the throat. The laity as well as the general medical profession are alive to the fact that diseased tonsils and adenoids can and do cause a great deal of trouble, and the proper removal of these structures is followed by strikingly beneficial results. The chronic suppuration from diseased tonsils and adenoids in children is not manifest as a discharge as are the conditions in the nose or ear, yet the constant outpouring and absorption of this septic material causes a condition not unlike a chronic septicemia. These patients are malnourished and underweight, anemic and have frequent acute infections of the respiratory tract, spoken of as colds.

The many other symptoms are too well known to be mentioned here again. The microorganisms found in the secretions from tonsils and adenoids in children are not many and consist mostly of the staphylococcic variety, although a large number of non-pathogenic forms are always present. Extensive investigations have been carried on as to the frequency of tuberculosis in these structures, and the consensus of opinion and my own investigation of many sections show that the bacillus tuberculosis and the tissue changes characteristic of tuberculosis are not nearly so frequently found as was formerly believed. It is, however, admitted that through these diseased tonsils and adenoids easier passage of the bacillus tuberculosis is afforded to the regional lymph glands of the neck. In regard to the chronic tonsillar infections of the adult, we find in many cases a purulent discharge from the crypts on the least pressure and very often one can express caseous masses of a very foul character, known as cheesy retention plugs. These are made up mostly of epithelial detritus, all forms of microorganisms, pus cells, mucus, leptothrix and cholesterin crystals, also particles of food. The bacteria of the purulent secretion as well as these plugs are not very virulent, and are a mixture of strepto- and staphylococci, but can and do take on great activity during an acute attack. A large number of affections have been accredited to these diseased tonsils, and one in particular—rheumatism. The various diseases resulting from these diseased tonsils may be grouped as follows:

LOCAL: Such as constant soreness in the throat and the many repeated acute attacks of tonsillitis and peritonsillar abscess.

2. REGIONAL: As the enlarged lymph glands of the neck, frequently spoken of as tubercular glands of the

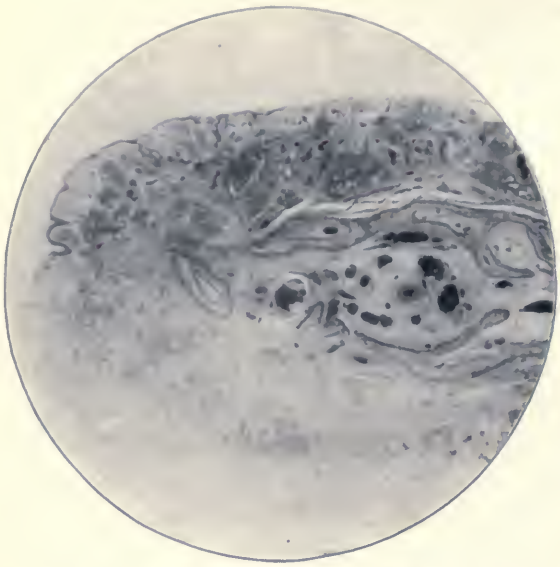


Fig. I.—Chronic hypertrophy of the middle turbinal in chronic suppuration of the sinuses.

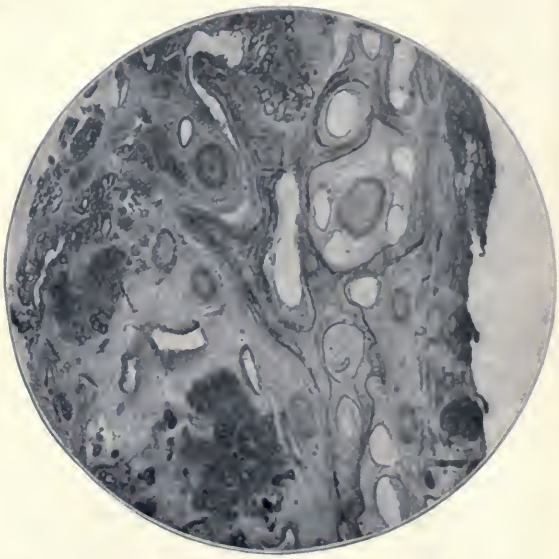


Fig. III.—Glandular hypertrophy of the middle turbinate and rarefying osteitis in chronic suppurative ethmoiditis.

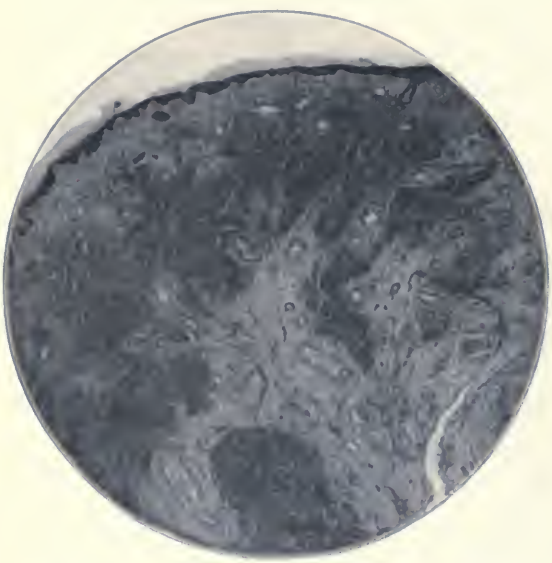


Fig. II.—Chronic glandular hypertrophy of middle turbinal in chronic suppurative pansinusitis.

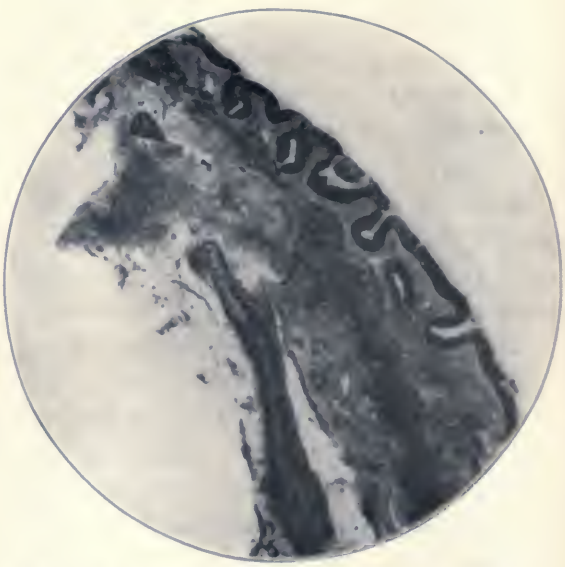


Fig. IV.—Necrosing ethmoiditis and chronic infiltrated hypertrophy of the mucous membrane.

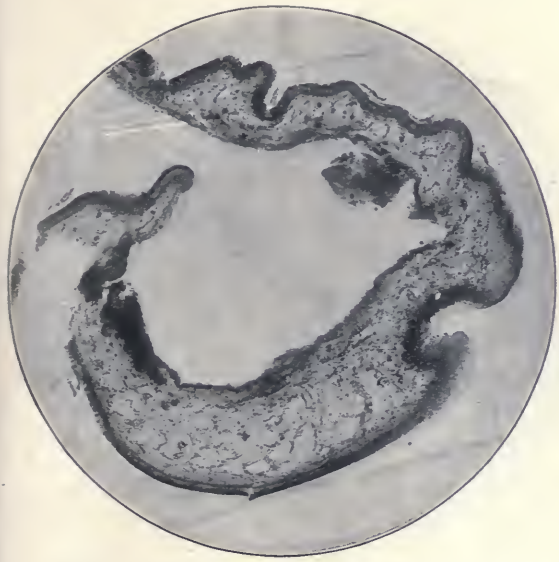


Fig. V.—Lining membrane of the frontal sinus in a chronic suppurative sinusitis.

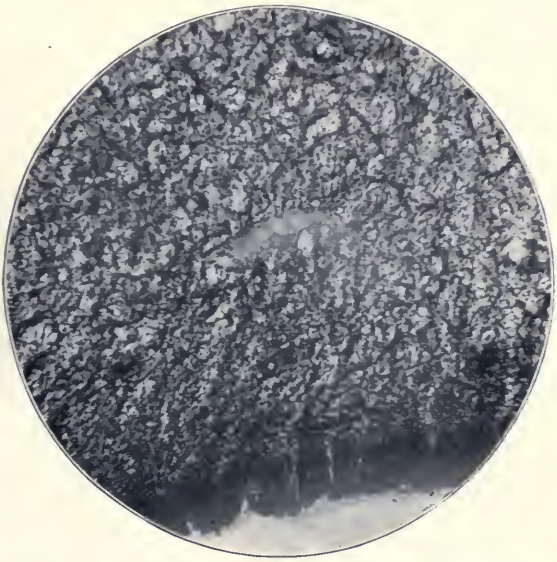


Fig. VII.—Solitary fibro-myxomatoris polypus of the frontal sinus in chronic suppurative pansinusitis.

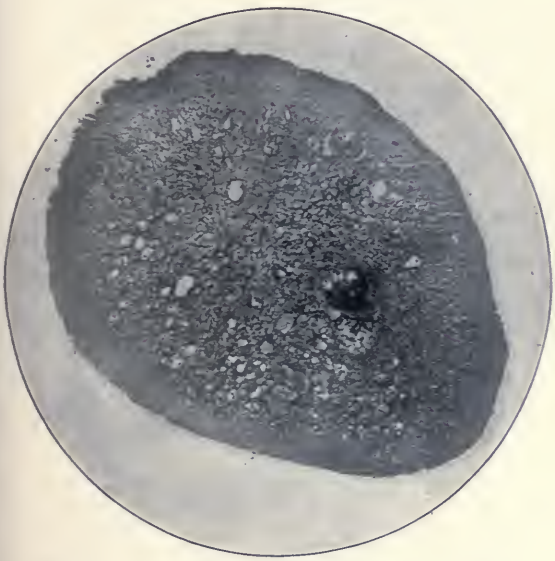


Fig. VI.—Solitary polypus of the frontal sinus in chronic suppuration.

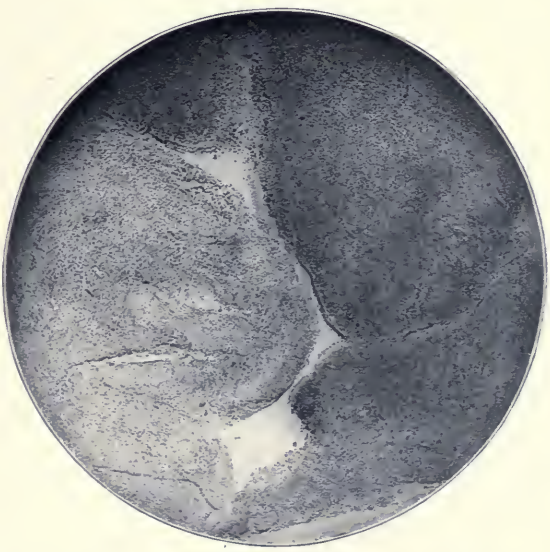


Fig. VIII.—Pyogenic membrane lining the antrum of Highmore in chronic suppuration of all the sinuses.

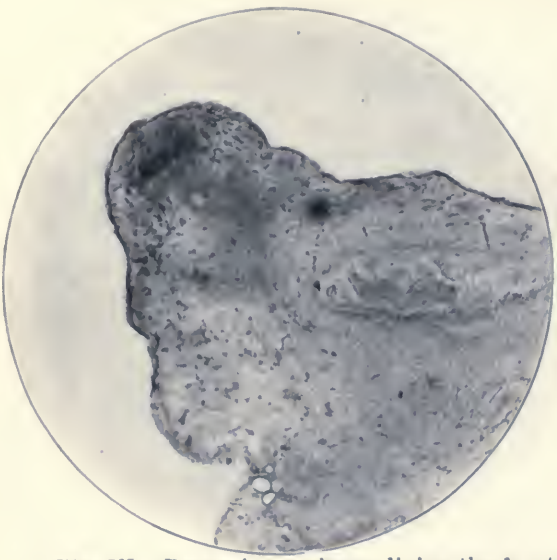


Fig. IX.—Pyogenic membrane lining the frontal sinus in chronic suppuration of all the sinuses.

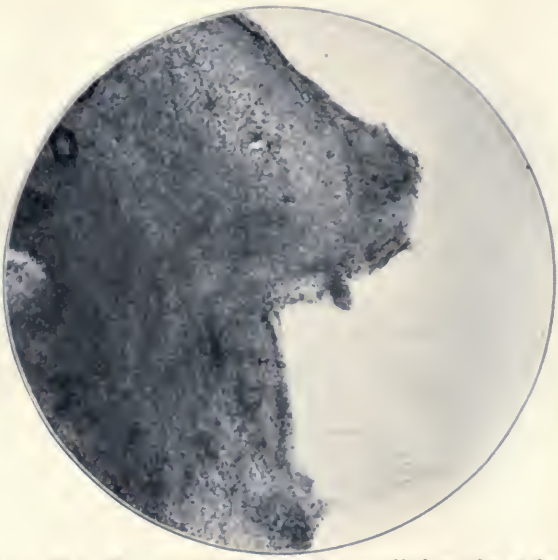


Fig. XI.—Pyogenic membrane lining the sphenoid in chronic suppuration of all sinuses.

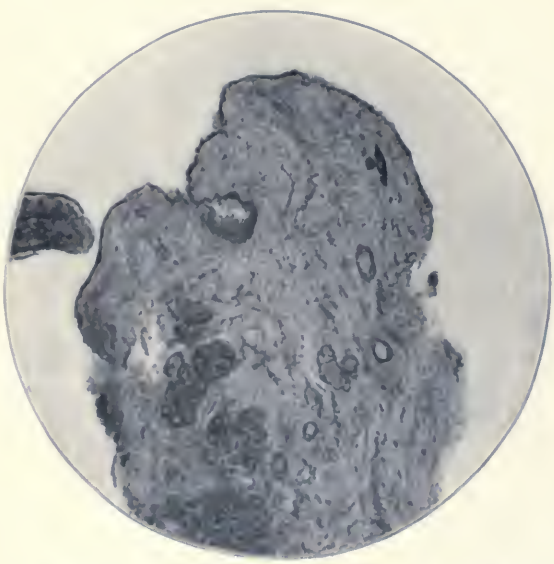


Fig. X.—Pyogenic membrane of the sphenoid sinus with some glands still remaining.

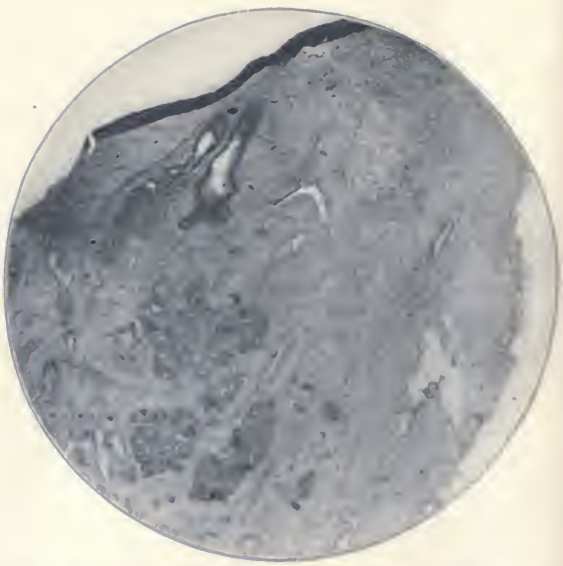


Fig. XII.—Metaplasia of epithelium of middle turbinal in early atrophic rhinitis.

Fig. XIII. Atrophic mucous of middle turbinal in atrophic rhinitis (unavoidable artiffects).

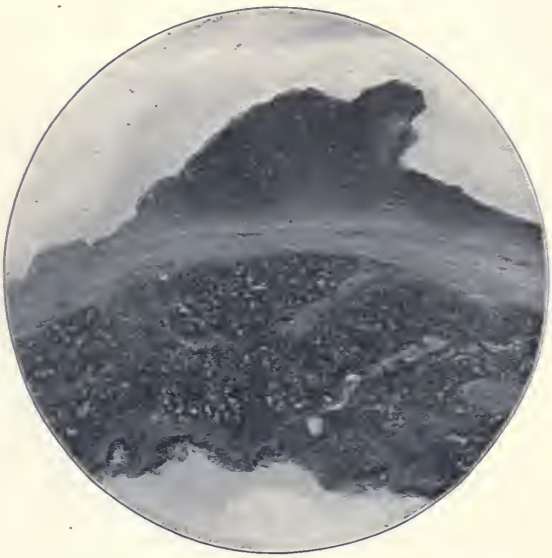


Fig. XV.—Hypertrophy of muco perichondrium of all the sinuses.

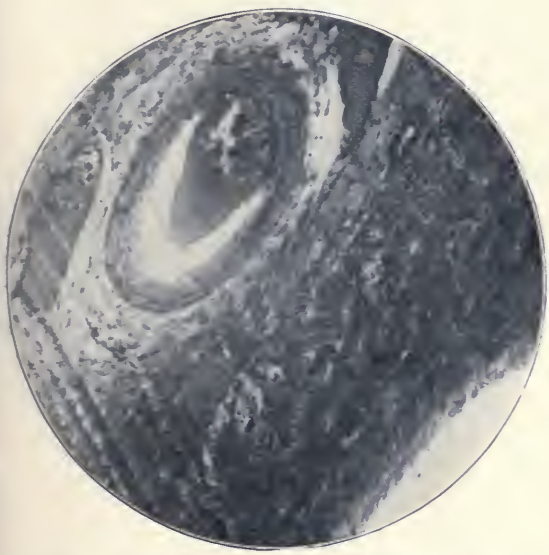


Fig. XIV.—Metaplasia of the epithelium in atrophic rhinitis (also a large vein).

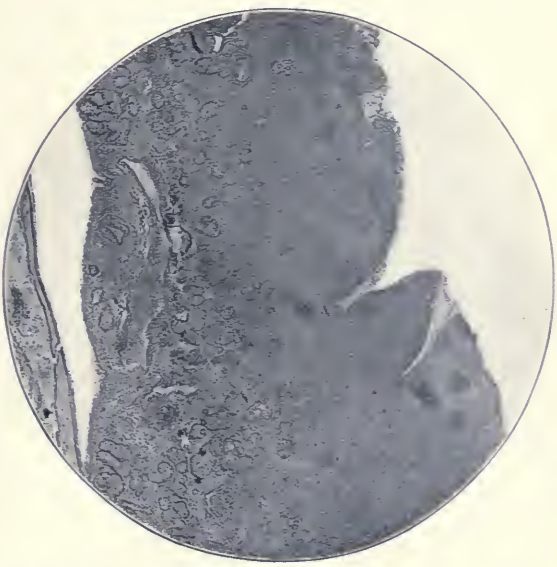


Fig. XVI.—Myomatous degeneration of glands and inflammatory edema of the middle turbinal in hyperplastic non-suppurative sinusitis.

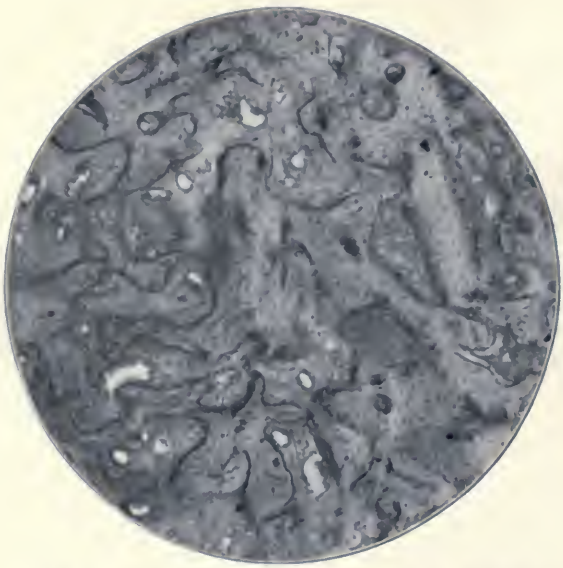


Fig. XVII.—Spindle-celled sarcoma of anterior wall of antrum of Highmore associated with chronic suppuration.

Fig. XIX.—Degeneration of the epithelium of adenoid.

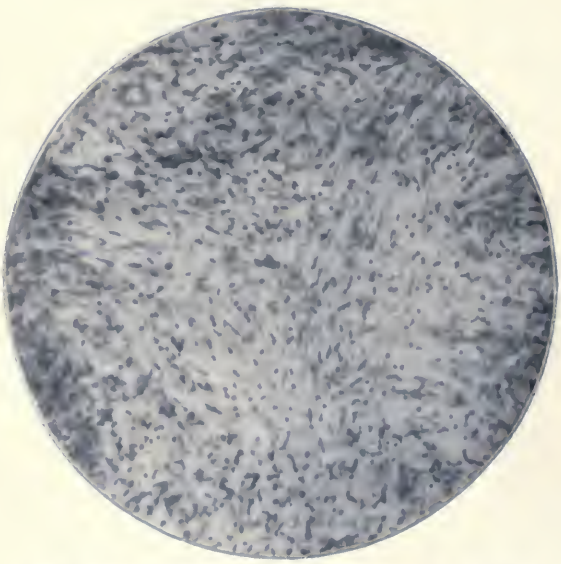


Fig. XVIII.—Spindle-celled sarcoma of anterior wall of the antrum of Highmore.

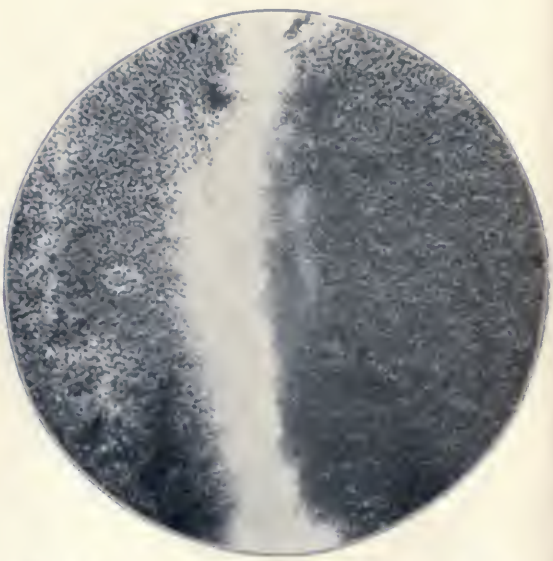


Fig. XX.—Hypertrophy and infection of the adenoids.

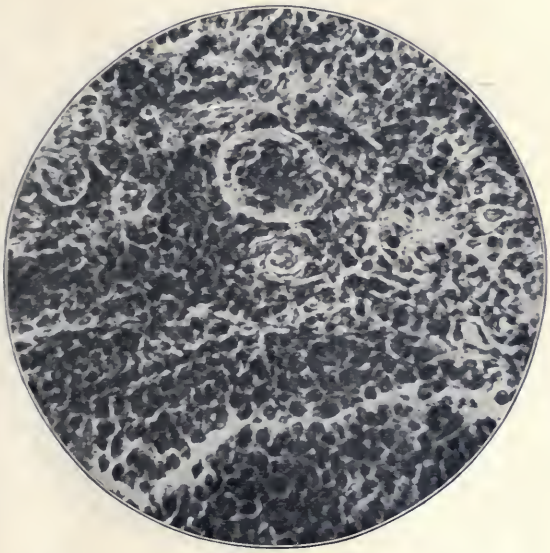


Fig. XXI.—Pseudo giant cells in enlarged adenoids.

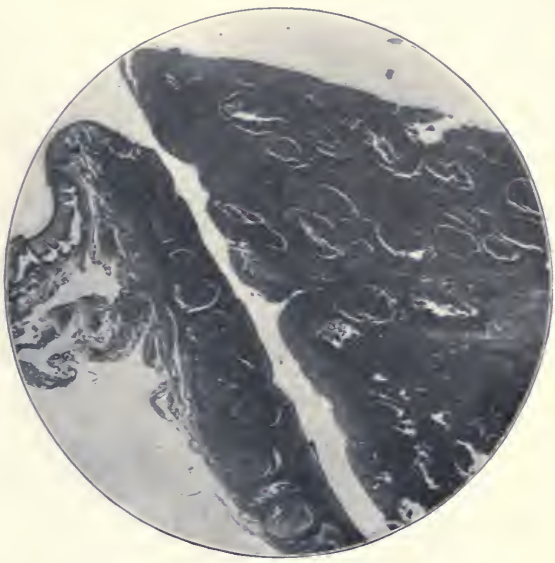


Fig. XXIII.—Large supratonsillar crypt.

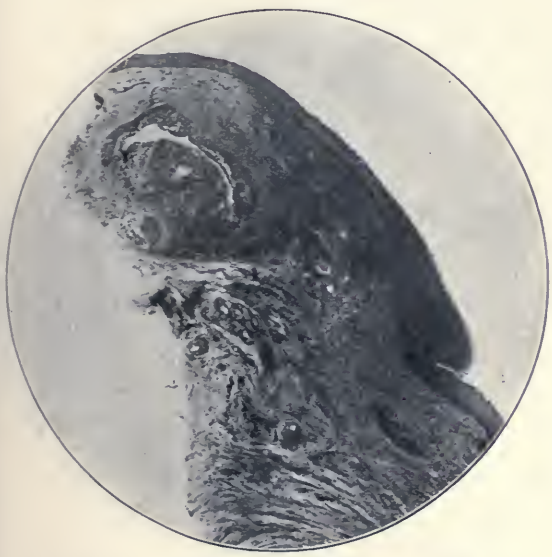


Fig. XXII.—Chronic granuloma and thickened epithelium in the so-called recurred adenoids.

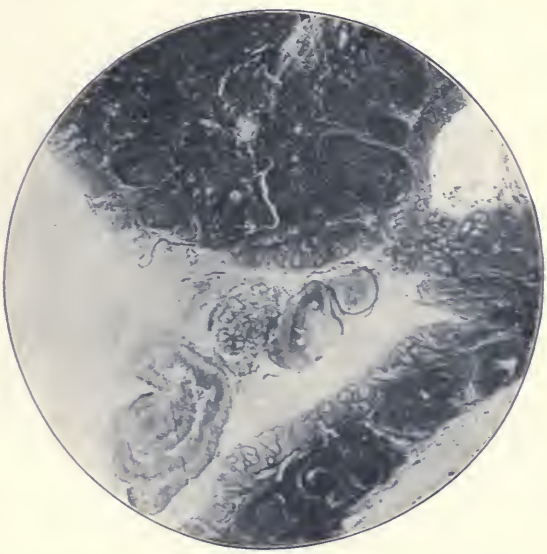


Fig. XXIV.—Caseous masses in markedly distended and degenerated crypts in chronic tonsillar infection.

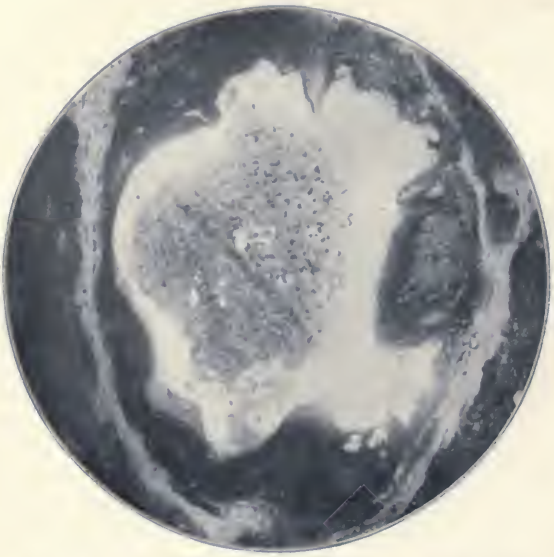


Fig. XXV.—Dilated crypts filled with detritus containing cholesterin crystals of a chronic tonsillar infection.

Fig. XXVII.—Tonsillar crypt filled with bismuth paste.

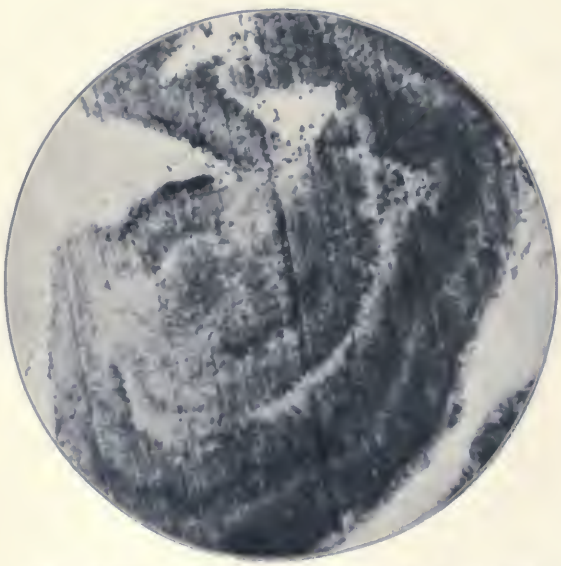


Fig. XXVI.—Caseous mass of a chronic lacuna tonsil infection.

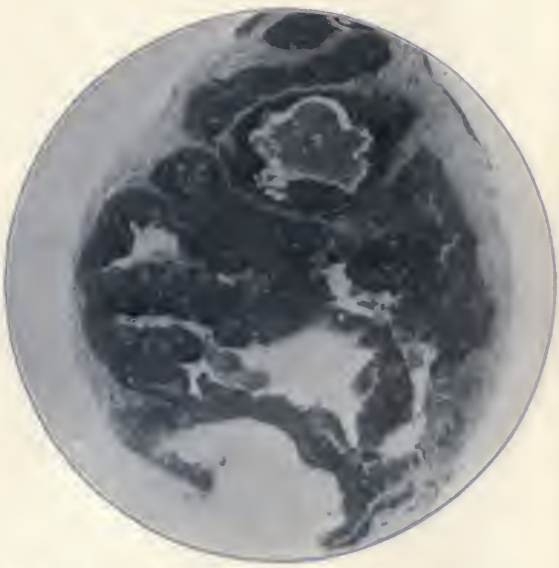


Fig. XXVIII.—Tuberculosis of the tonsil and caseous dilated crypts.

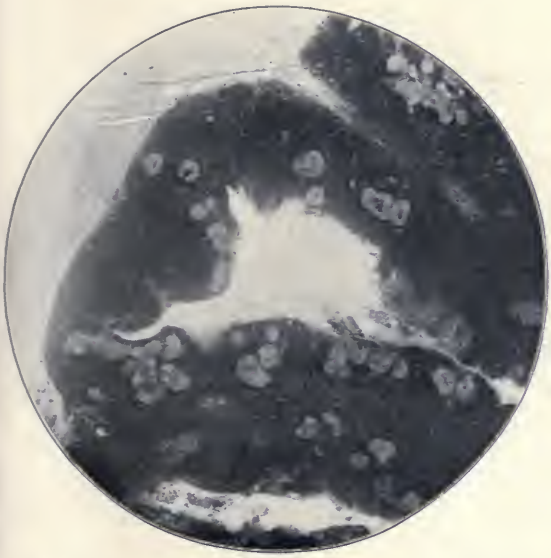


Fig. XXIX.—Tuberculosis of the tonsil and a dilated degenerated crypt.

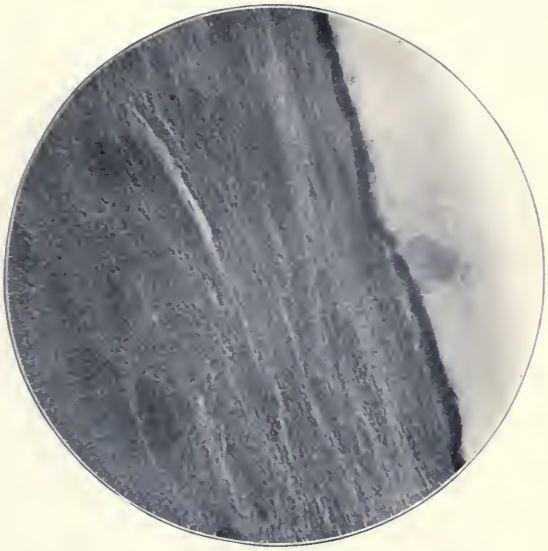


Fig. XXXI.—Osteo-sclerosis of the mastoid in chronic suppuration of the middle ear.

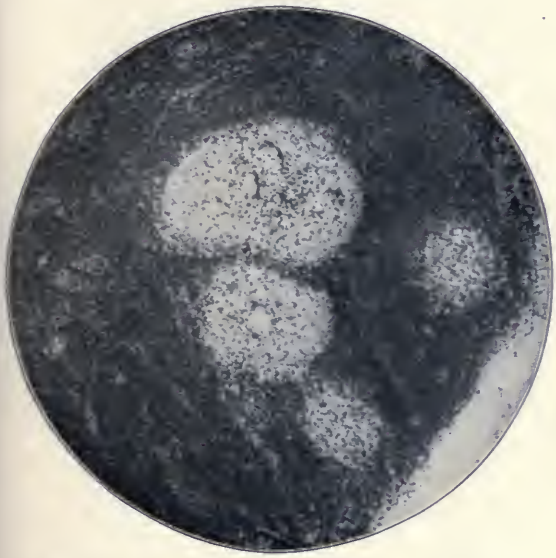


Fig. XXX.—Tuberculosis of the tonsil with caseation.

Fig. XXXII.—Fistulous tracts in mastoid in chronic suppuration of the middle ear.

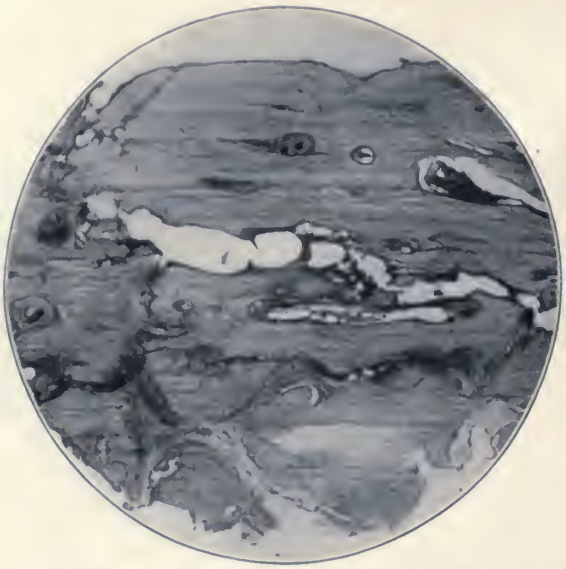


Fig. XXXIII.—Fistulous tracts in mastoid in chronic suppuration of the middle ear.

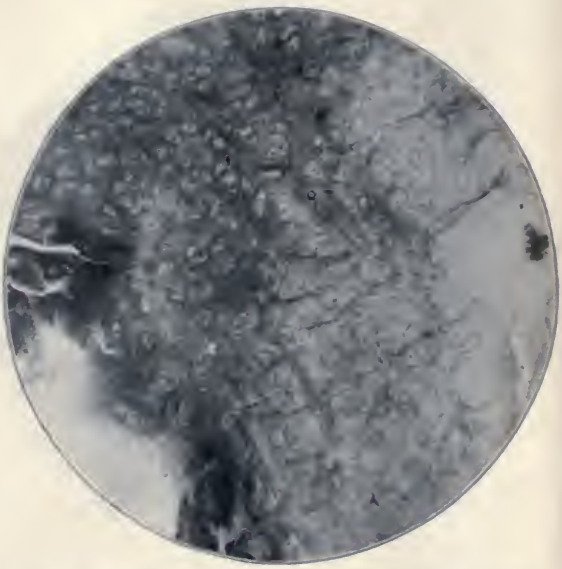


Fig. XXXV.—Chondromatous formation in mastoid in chronic suppuration of the middle ear.

Fig. XXXIV.—Cholesteatomatous infiltration and osteo-fibrosis of the mastoid in chronic suppuration.

Fig. XXXVI.—Granuloma of the middle ear with cholesteatomatous invasion in chronic suppuration of the middle ear.

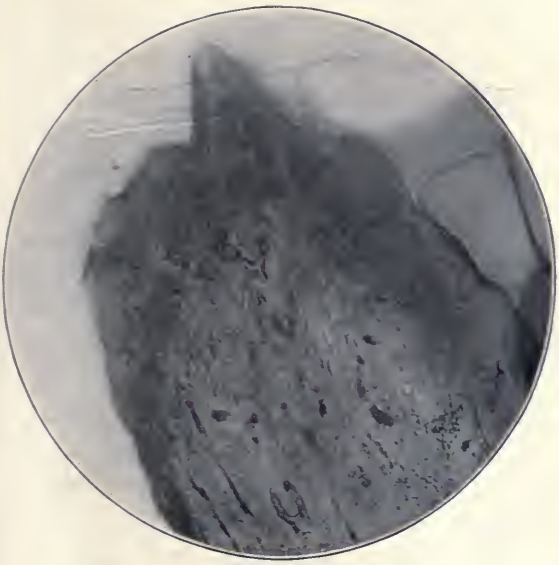


Fig. XXXVII.—Sequestrum of mastoid in chronic suppuration of the middle ear.

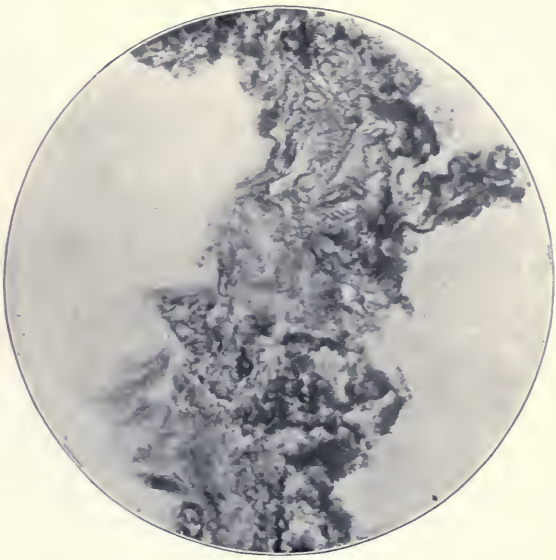


Fig. XXXIX—Osteo-fibrosis with bismuth infiltration of the mastoid in a reoperated case of chronic suppuration.

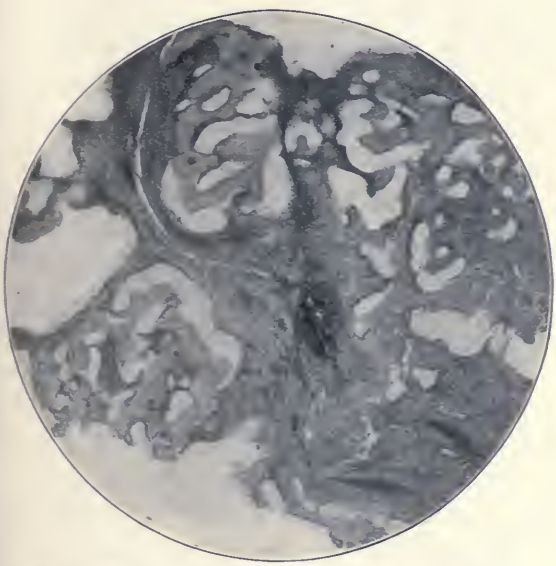


Fig. XXXVIII.—Tuberculosis of mastoid in chronic suppuration of the middle ear.

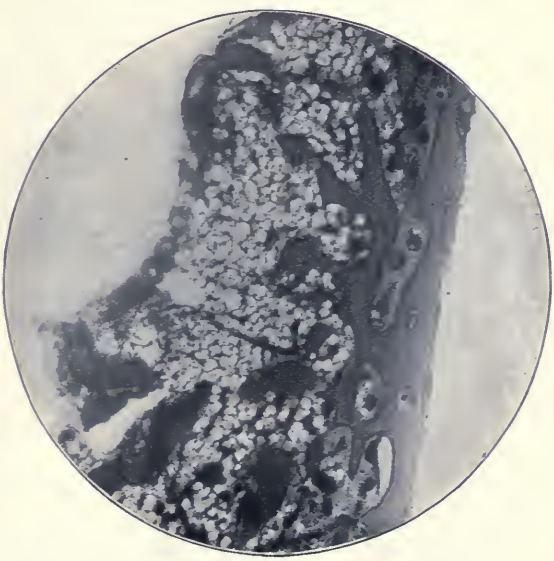


Fig. XL.—Regeneration of bone in mastoid after reoperation for chronic suppuration.

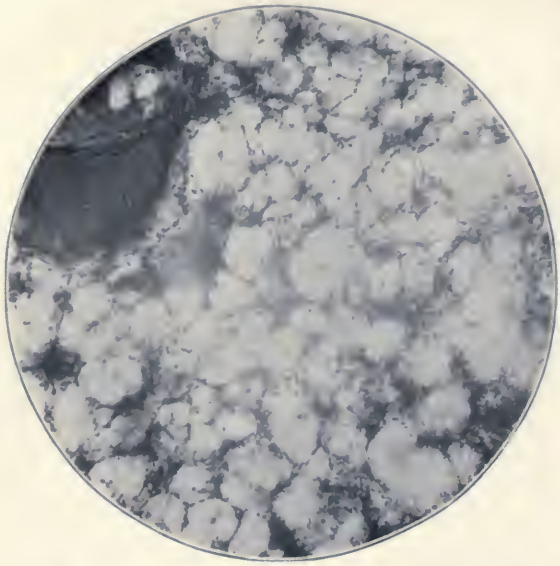


Fig. XLI.—Regeneration of bone in the mastoid in reoperated case of chronic suppuration.

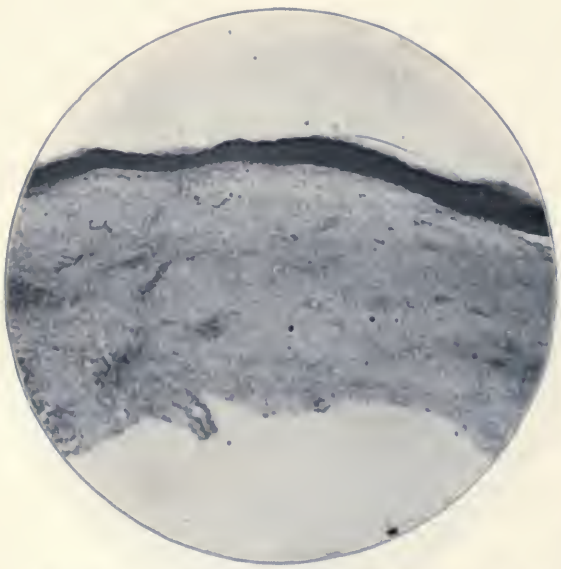


Fig. XLII.—Scar covered with epithelium of the epidermized cavity after radical mastoid in a reoperation.

neck; also secondary Eustachian tube and middle ear inflammation.

3. GENERAL: Examples of these are too many to enumerate. In this connection, I wish to say that perhaps the enthusiasm may carry some specialists too far, and great care should be exercised in promising a patient the cure of his rheumatism, etc., after his tonsils are removed. It is well-known that there are many other sources of septic infections beside the tonsils, as pyorrhea alveolaris, or some chronic bowel infection, etc. At the same time, I believe the error is made more frequently in not paying enough attention to the tonsils, or they are not thoroughly enough removed, when a claim is made that removal of the tonsils did not stop the trouble. The entire tonsil with capsule intact, when removed, speaks for a thorough and proper operation, and then good results can be expected.

CHRONIC SUPPURATIONS OF THE EAR.

Perhaps in no other department of medicine has there been such a marked advance in the diagnosis and surgical treatment than in the management of suppurative ear diseases. When we reflect for one moment and recall the advice that was given by the general practitioner to a patient who had a running ear that "as long as the ear discharges there is no danger, but look out when it stops," we feel happy that that period is over. Yet the same practitioners, and quite a number of so-called specialists continue to treat these chronic suppurations of the ear in a palliative manner and allow grave pathological changes to develop and progress right under their observation, and only advise operation when an acute exacerbation sets up a violent mastoiditis or some other serious complication, as facial paralysis,

labyrinthian irritation, brain symptoms or sepsis from sinus thrombosis. Thanks to the modern life insurance examiners who recognize the risks that the company takes in writing a policy for a man having a chronic suppurative ear and insist that such an ear must be healed permanently and by an operation, preferably radical mastoid (which is very much encouraged by these companies, in order to obtain such results), more attention is being paid to these chronic conditions. It is not meant that the ear must be dry, because the Eustachian tube may be leaking mucus, and still the chronic suppurative disease is healed.

Many positions under the Civil Service law, the United States Navy and Army, and many other institutions insist upon the cure of a chronic suppurating ear as they would insist upon the correction of other bodily defects before they accept the applicant. Our school boards make a provision to insist that a pupil who has a chronic suppurating ear—for that matter, decayed teeth, tonsillar and adenoid disease, or eye defects—must have these defects corrected before he is permitted to continue attending school.

Based upon the pathological changes and clinical experiences, we can safely say that the chronic discharging ears, especially adults, are in the main incurable without a mastoid operation. I will grant you that there are many, very many cases on record that have been cured by skillful local and general treatment, but when compared to the enormous number of complicated cases that had to be operated upon in a hurry during an acute exacerbation, it is a question whether it is wise to take a chance of what is going on beyond the parts that can be inspected and controlled. So that, while one is believed to be cured, in reality he is in constant danger of such an acute outbreak. There is one redeeming feature in the accessory spaces to the middle ear, the mastoid cells—especially the diploeic type—in chronic suppuration, and that is that there can and often does occur an obliteration of these cells by a process of osteo-fibrosis or sclerosis. This obliteration may, however, take place in all but one or two cells, and by the aid of an acute attack of middle ear inflammation this dormant infection flares up and sets up grave complications.

There is a pathological entity in chronic suppuration of the ear that is of particular clinical and prognostic importance, and that is cholesteatoma. In these cases there is absolutely no other interference logical than the complete eradication of the entire system of cells, removing the two ossicles—malleus and incus; thoroughly remove all cholesteatomatous masses, and its membrane or matrix from the bone, as well as all other pathologic tissues, and converting the middle ear, external ear and mastoid cavity into one. This, with additional details of a plastic for the assistance of subsequent epidermization of this large created cavity, is called the radical mastoid operation. There are some important points that present themselves in connection with this operative interference in these chronic suppurations of the ear.

In the *first* place, the question of the hearing. It is generally conceded that when a radical operation is performed, as mentioned above, that the hearing becomes affected. Not that the auditory nerve becomes affected, but the finer quality of hearing and understanding are materially damaged in the majority of cases.

Second: That this fact of reduction of hearing is most important if both ears are suppurating, because a patient thus operated upon on both ears would be practically deaf. In defense of these two difficulties one may say that if the chronic suppurative process is allowed to continue, not alone will the hearing finally become bad, but it may be lost entirely, and the patient is liable to have very severe complications, as, for instance, severe irritation of the cochlea and vestibular apparatus, causing the symptoms of marked head and ear noises, dizziness, vertigo and staggering gait; facial twitching and paralysis; severe head pains, frequently indicating involvement of the intracranial structures, as a local or general meningitis, brain abscess and sinus thrombosis, with their frequent fatal termination. As to the second contention of both ears being affected, there will often be one ear not so markedly changed, with perhaps good hearing still present, especially in a younger individual. One may do a less radical operation by not removing or disturbing the ossicular chain or the remains of the tympanic membrane.

It is needless to say that the nose, nasopharynx and tonsillar region, as well as the pharyngeal end of the Eustachian tube, require and receive attention in removing all the pathological conditions, either before or after operation, which may be perpetuating this chronic suppuration from the ear.

Recently Yankauer and several other men have reported on the beneficial results from the obliteration of the tympanic end of the Eustachian tube in chronic suppuration of the ear, but from my former remarks, based upon my study of the pathology of operated cases, I have not felt favorably disposed to employ this method of procedure, except in cases of radical mastoid operation in which the Eustachian tube continues to discharge on the slightest provocation. About five years ago I reported my result on a new method of obliteration of the Eustachian tube by dissecting out the mucous membrane of the pharyngeal end of the tube, and I have been very successful with this method.

I will now demonstrate the various pathological conditions by means of histological specimens of nose, throat and ear suppuration, as referred to in the paper. These represent typical conditions picked out from about four hundred cases which I have operated for the cure of chronic suppuration.

STUDIES IN GYNECOLOGY AND OBSTETRICS.

BY

ELLICE McDONALD, M. D.,
New York City.

(*Continued*).

CHAPTER XI.

THE DURATION OF PREGNANCY.

The duration of human pregnancy is one of the unsettled problems of medicine and must remain so, because pregnancy has no fixed term, but varies normally within wide limits. It is a difficult matter to study because of the impossibility of being sure of the time of conception even although there is only one coitus. The spermatozoa may live for five days in the vagina and conception may take place some time after coitus. It is also difficult to be sure that only one intercourse has taken place, even although the masculine side of the question is without debate.

The subject is one which sometimes gives rise to interesting medico-legal problems. The most famous of these is the Gardner peerage case, where the husband, a soldier, was absent from his wife 302 days before birth of a child to his wife. A more recent divorce case brought up the question whether a fully developed baby born 247 days after the return of the wife to the husband could be the offspring of the husband.

A case recently came under my notice as medical expert. The girl was married by a young man, because, she said, he had impregnated her. This was said to have occurred in September. She stated that her last menstruation was September 23d. The young man was urged to annul the marriage. Examination showed a pregnant uterus whose fundus was 24½ cm. high above the symphysis, measured according to my rule. This gave the duration of pregnancy as (24½ ÷ 3½) 7 lunar months and dated the pregnancy back to July 18th. At this time the girl was not in this country. Careful questioning brought out the truth that about that time she was in a hotel abroad, had had relations with another man and had shortly afterwards missed her menstruation and on her return had looked around for an easy victim. Had it not been that a definite statement, as based on the rule of duration of pregnancy was made the confession would not have been obtained.

As the size of the child varies, so may the duration of pregnancy. Observations upon cows, whose term of pregnancy approaches in duration that of the human animal, have shown that their period of gestation is by no means a fixed term, but varies from 240 to 321 days. The average duration was 285 days according to Tessier's researches which extended over 40 years. Earl Spencer's experiments in 724 cases corroborate those of Tessier. While the variation of the duration of pregnancy in cows is no evidence of a similar variation in the human animal, it is at least suggestive that a similar variation does occur in pregnancy in women. The range of variation is about what our researches into human pregnancy lead us to expect.

There is no doubt that pregnancy in women may be prolonged in a certain percentage of cases and several instances of abnormally long pregnancy have been reported. Winckel[1] has collected 20 cases which he has discussed in detail, and has accepted 6 cases as authentically proved prolonged pregnancy of 310, 311, 312, 324 and 336 days, with children weighing from 5770 to 7470 grams. Nine of the remaining cases he rejects as not proved, and five were not completely satisfactory. Many other isolated cases have been reported, such as those of Allen[2] and many others.

While it is difficult in many cases to estimate exactly the probable time of conception, it is conceded by obstetricians generally that prolongation of pregnancy does occur, and that the children of such pregnancies are remarkable for their large size. It is also believed that a proportion of overweight children are carried for more than the average time of pregnancy. While admitting that isolated observations prove nothing in this connection, it is evident that the average duration of many hundred cases weighing 4000 grams, and over, must have considerable force. Winckel has collected 245 cases of this great weight and estimated the duration of pregnancy

[1] *Leyden's Deutsche Klinik*, IX, 5 to 10.
[2] *Amer. Journ. Obst.*, 1907, IV, 4.

as follows, as to the time after the last menstruation:

Duration of Pregnancy in days.	After last Menstruation.
241 to 260	3.7 per cent.
261 to 270	6.1 "
271 to 280	18.3 "
281 to 290	38.0 "
291 to 300	18.8 "
301 to 310	8.5 "
311 to 336	6.6 "

This collection shows that it is not an isolated occurrence that heavyweight children are carried beyond the ordinary term of pregnancy; but it is a fairly definite proof that children are often overweight, because they are carried for longer than the ordinary term. While it is true that large infants may be the result of short pregnancies, as was the case in 3.7 per cent. of these cases, it is more common that heavy children are the result of pregnancies longer than the average 280 days, as was the result in 71.8 per cent. of this series.

In 31 of the larger babies with an average length of 53.8 cm. and an average weight of 4276 grams, the prolongation of the gestation period was 31 days, counting from the last menstrual period. The average prolongation of the gestation in infants weighing 4000 grams, or slightly less than the preceding, was 8.22 days, reckoning in the same way from the last menstruation. Thus, also, in children weighing 4000 grams it was found that 30, or 12.2 per cent. had had a gestation period of longer than 302 days, the legally determined duration of pregnancy in Germany.

Blau and Christofoletti[1] also have collected the cases of large children from 68,032 births in the clinics of Schauta and Chrobak for the years 1892 to 1901, in order to determine the correlation of large children and protracted gestation. Among 1778 children weighing more than 4,000 grams, the pregnancy lasted more than 300 days in 150 cases, and more than 302 days in 135 cases.

This seems, therefore, to be conclusive proof that pregnancy may persist for longer than 280 days and that, when it is prolonged over term, the resulting child is commonly of large size. These cases cited were clinic cases, where conditions were not favorable to large children, as repose favors the increase in weight of the child. Rest, as has been proved by Pinard[1], is a factor which may distinctly prolong the pregnancy. This may explain the difference between gestation in summer (277.2 days) and winter (279.5 days) or between married (282.4 days) and unmarried (278.2 days), as has been shown by Pinard[2]. This influence of quiet and rest will also explain the larger number of heavy children found in private practice, as the luxury of a home influences the weight of the fetus. Letourier[3] has shown that women who have fatiguing work to do have children lighter in weight than those who are able to rest during their gestation. He found an average difference of 220 grams between these classes.

The type of menstruation, the sex of the fetus, and heredity are all said to have effect upon the size of the fetus and the duration of pregnancy; but none are proved to have any influence.

On the other hand, constitution and habitus do seem to have an influence as

[1] *Monats. f. Geburtsh. u. Gyn.*, 1904.

[1] *Dictionnaire de Physiologie*, 1905, article Gestation.

[2] *Clinique Obstetricale*, 1899, 51.

[3] *Thèse de Paris*, 1897: De l'influence de la profession de la mère sur le poids de l'enfant.

Issmer[1] found an average duration of 278.6 days in robust women, and 276.8 days in weak women. He also states that there is an average increase of weight of the child in each pregnancy of 224.5 grams. The first child is the smallest, as a rule, and each succeeding pregnancy produces a larger child up to the ninth.

Another artificial cause of prolonged pregnancy is the performance of the operation of ventrofixation of the uterus. A number of long pregnancies with very large children have been reported after this operation. The most likely explanation is that the unequal development of the uterus and the thinning of the posterior wall causes the cervix to be displaced in its relation to the pelvic axis. The early pains, being weak from the thin walls, are not able to press the presenting part into the os to bring about dilatation. From the various reports it appears that the pains came on and passed off again several weeks before birth actually occurred.

While thus it may be seen that many factors affect the duration of pregnancy, Issmer has also estimated that the size of the fetus bears a relation, as a rule, to the duration of pregnancy, as follows:

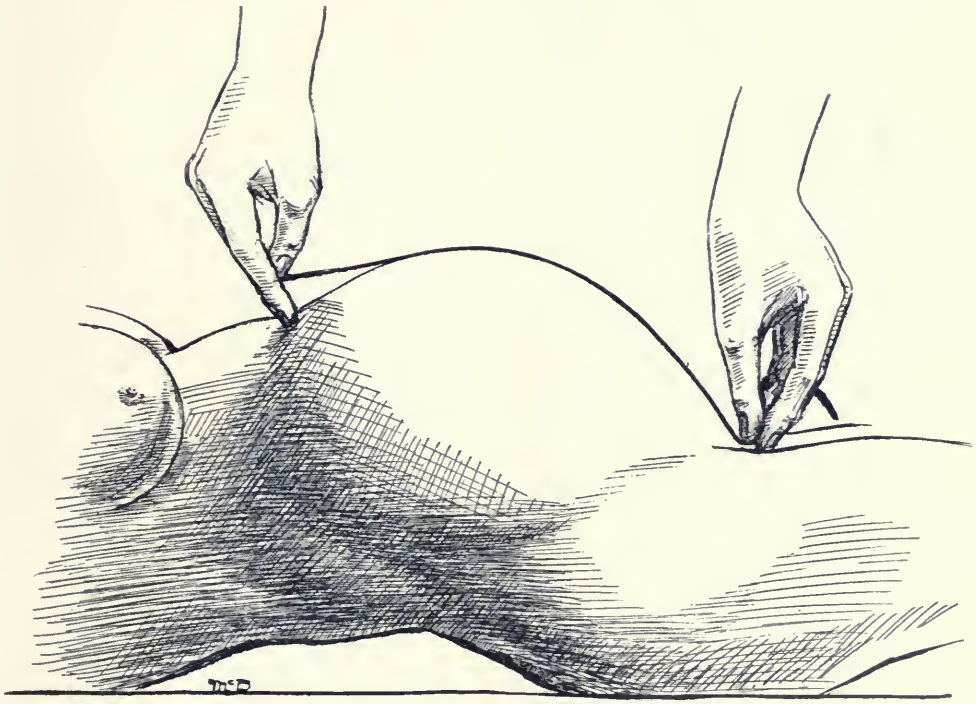


Fig. 1.

48 cm.	averages	271.3	days
49 cm.	"	278.4	"
50 cm.	"	277.1	"
51 cm.	"	282.5	"
52 cm.	"	283.6	"
53 cm.	"	286.5	"
54 cm.	"	290.0	"

He states that there may be a difference of ten to eighteen days in the duration of pregnancy; but, basing his statements on

[1] *Arch. f. Gyn.*, XXX, 277, and XXXV, 310.

the average of his large collection of cases, he says that the larger the child the longer is the pregnancy, and that the increase is in the proportion of his table. Large children do also occur in shorter pregnancies, but they are much more infrequent than when the pregnancy is prolonged.

These variations in the duration of pregnancy make it difficult to prognosticate the date of labor. If the usual rule is applied of adding seven days and subtracting three months from the date of the last menstruation, the estimate may be three weeks out of the way; but basing it upon the average duration of pregnancy, it is often correct. However, conception may have occurred immediately before the first missed menstruation, and so give a factor of error.

Since, however, the attempt to estimate the duration of pregnancy by the number of days is inexact, it might be well to attempt to estimate the duration of pregnancy from the size of the fetus. For, if the fetus may be measured and the average size of the fetus is known, the date of labor will be when the fetus arrives at average size in the great majority of cases.

So, with the hope of being able to determine the date of labor, I have evolved a rule which is dependent upon the height of the fundus of the uterus above the symphysis. The height of the fundus is dependent upon the occipitococcygeal measurement of the child, and this varies in direct proportion to the weight of the child, as does the length. The details of this proportion have been worked out in a previous paper[1].

The rule is as follows: The duration of pregnancy in lunar months is equal to the height of the uterus in centimeters divided by 3.5. It depends upon the more or less regular growth of the uterus of 3.5 cm. each month of four weeks, and is very exact after the six month. The measurement is taken with the patient lying flat (see figure), and one end of the tape is placed at the upper border of the symphysis, while the other is held by the thumb into the palm of the hand. The fingers of the upper hand are held at right angles to the fundus of the uterus, and the tape follows the contour of the uterus save at the last dip, as is shown in the illustration. Multiparae with lax abdominal walls and thin uteri should be supported at the side, so as to bring the occipitococcygeal axis of the pelvis into the long axis of the mother's body.

This method gives satisfactory results and is the most exact means of estimation of the duration of pregnancy. It is strictly an estimation of the size of the fetus; for when the uterus arrives at the height of 35 cm., or full term ($35 \div 3.5 = 10$ lunar months), the fetus is of a weight of 3,300 grams, or average size, as is shown by the measurements in my former paper. Thus, an average-sized baby usually comes at the average period of pregnancy—hence the rule.

After the sixth month this rule is extraordinarily exact, and is most useful in determining the date of labor and the size of the fetus, when the date of the last menstruation has been forgotten. It has been in use in my hands since 1904, and I have had good reports of it from many obstetricians, including some of my German confrères. Hamilton has reported it to me to be of great use in asylum practice in insane pregnant women who are not able to give a connected history of menstruation.

[1]Mensuration of the Child in the Uterus, *Jour. Amer. Med. Ass'n.*, December 15, 1906.

ILLUSTRATION.

Author's Rule: The duration of the pregnancy in lunar months equals the height of the uterus in centimeters divided by 3.5.

It may be said that 35 cm. is the usual height of the uterus at full term with a fetus of 3,300 grams. For every centimeter of height above this measurement approximately 200 grams should be added to the weight of the fetus. Thus, a uterus measuring 37 cm. would contain a fetus weighing 3,700 grams. The measurements are more exact below 35 cm., than above that height.

The so-called "sinking" of the fetus in the last two weeks of pregnancy causes but little error in the measurement, as the head, when the patient is recumbent, rides upward on the pelvic bones and the sinking is not a factor. "Sinking" in my experience is not common in primiparae, and its supposed presence is often due to the stretching of the abdominal muscles and not to descent of the head into the pelvis. The fundus thus comes lower in the erect position, and no diminution of the fundal height is noted in the recumbent. This is well shown in Hirst's photographs of women at various periods of pregnancy. "Sinking" does, however, in multiparae sometimes complicate the measurement, but not often. Hydramnios also causes but small error, as the excess of liquid does not affect the fundus, but the body of the uterus, leaving the height of the fundus to be determined by the occipitococcygeal measurement and the size of the fetus.

The rule gives the most exact means at hand of prognosticating the date of labor. No rule can be exact when dealing with such an uncertain quantity as the duration of pregnancy, save that in the majority of cases an average-sized baby is born at the average time.

Thus, if the fundus measures 26 cm. from the symphysis, the duration of pregnancy is 26 divided by 3.5 or 7 3-7 lunar months, and the patient has 2 4-7 lunar months to go to term, or ten weeks and two days.

This rule, combined with the estimation of pregnancy by reckoning from the last menstruation, gives a fairly exact determination of the probable date of labor.

While the rule is useful for the determination of the date of labor, it is still more useful for the determination of the size of the fetus, with a view to induction of labor for contracted pelvis or other cause. When the fundal measurement is at or near 35 cm., I never hesitate to induce labor when indicated, knowing that there is a fetus of the average weight of about 3,300 grams and capable of standing instrumental delivery and not liable to die from prematurity.

When used for the purpose of estimating the size of the child in contracted pelvic or other conditions, it should be used in conjunction with other methods of measuring the head., etc.

CHAPTER XII.

MEASURING THE BABY BEFORE BIRTH.

General Considerations.—The whole question of prognosis and prognostication of any individual labor depends upon the size of the child. It may be said, generally speaking, that if a woman has a small child, she will have an easy labor, an average size child an average labor, and a large child a hard labor.

This is particularly the case in moderate degrees of contraction of the pelvis. Marked contraction of the pelvis is rare; moderate contraction is not uncommon. In moderately contracted pelvis with a true conjugate above 8.5 cm. there is 85 per cent. of spontaneous delivery. (A true conjugate of 11 cm. is normal). In the other 15 per cent., the pelvis is obviously not too small, but the baby is too large. The difference between a six and ten-pound baby is considerable. The larger baby has a larger head, so that it will not come through as small a hole. The larger head is firmer, the bones well ossified, and moulding is more difficult. Apart from the other causes of difficulty in labor from large babies, these are sufficient. If the babies were small enough and kept small enough, the other 15 per cent. would be born spontaneously, too.

The pelvis can be measured exactly and an opinion formed of it by examination. But if a pelvis is moderately contracted, it may allow a small or normal-sized baby and not a large one. Who, when buying bullets for a rifle, would measure the bore and not the ball? Yet, we measure a pelvis carefully and do not even try to estimate the size of the baby. For if the size of the baby may be measured, induction of labor may be done at a time when the child is viable and strong and yet come through. The normal-sized babies do not cause trouble in moderately contracted pelves, but the big fellows do. The biparietal diameter comes into relation with the true conjugate and in a normal child this averages 9.25 cm., so that with a true conjugate of the same contraction, 9.25, the child should in the general run of circumstances be born spontaneously, as they are in 85 per cent. with the rather greater contraction of 8.5 cm.

But the profession is ghost-dancing after that false prophet, Caesarean section in moderately contracted pelvis, forgetting other less spectacular and less dangerous methods. It is so easy to do a Caesarean section. Cut in, pull out the child and sew up. It is the easiest kind of abdominal operation, yet the mortality in 3,000 collected cases in the last twenty years is 7 per cent. One operator, Davis,[1] has done 104 with 14 per cent. mortality in mothers and 17 per cent. in children, one in every seven women died after Caesarean section. McPherson[2] has recently reported 352 cases from the Lying-In Hospital (including Davis' cases) with 10.7 per cent. mortality. There were 187 with unruptured membranes with 10 per cent. mortality and 165 cases with ruptured membranes with 11.5 per cent of deaths. Fifteen per cent. of all the children died. Caesarean section should be confined to those cases of contracted pelvis that cannot possibly be delivered in other ways. It will always be an operation of considerable mortality on account of the condition of the uterus, the trauma, lessened resistance of the pregnant and the escape and contamination of discharges. These conditions are fundamental.

What is the other side of the picture? In 941 collected cases of induction for contracted pelvis, one mother died and 88 per cent. of the children were saved. This is somewhat better than 210 mothers dying after 3,000 Caesarean sections and 96 per cent. of children born alive with no record of those dying in the puerperium. Induc-

[1] A. B. Davis, Bull. Lying-in Hospital, June, 1911. *Surgery, Gyn. and Obst.*, Oct., 1911.
[2] McPherson, *N. Y. State Jour. Med.*, 1913, March.

tion is obviously considerably safer for the mother and about the same for babies.[1]

If, then, we can measure the bullet as well as the bore, better results can be obtained. When we can measure the baby accurately, Caesarean section in moderately contracted pelves will be unjustifiable, except in cases consulting the physician after the infant has already grown too large for induction. A six and a quarter pound child has as good a chance of life as an

the greater the weight, the larger the head. The diameters of the head increase in fairly definite proportion with the weight. 2. The biparietal diameter, because this diameter comes closest into direct relation with the smallest pelvic measurement, the true conjugate or anteroposterior diameter.

If these two proportions of the fetus in the womb can be estimated, then the labor can be induced at such time as will give the largest child that can safely come through

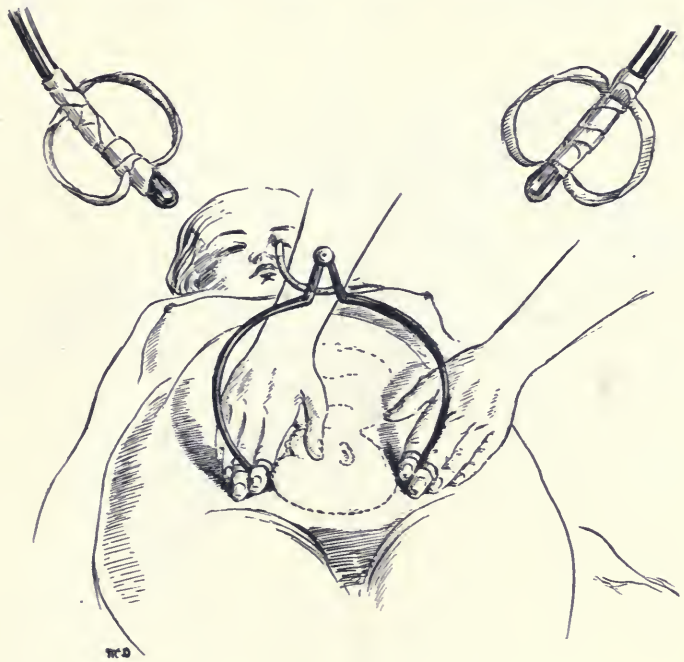


Fig. 1.

average seven and a quarter pound one and lots better than a nine pounder. It is less battered in passage. Chilling, defective feeding and infections are the dangers of all young infants and these may with reasonable care be avoided.

Measuring the Baby.—In measuring the baby, what measurements are of importance? 1. The weight of the baby, because

that particular pelvis. We then have a scientific basis for the obstetrical problem. Any fairly accurate approximation of the size of the child is better than none, because there has been none heretofore.

To attempt to estimate the weight of the baby within the womb is best done by means of my rule for the duration of pregnancy. This rule is strictly a rule for the estimation of the size of the child and is based upon the fact that most children of average

[1] See figures and case reports, *N. Y. Med. Jour.*, 1912, Mar. 9 and 16.

weight, seven and one-third pounds, are delivered at the average time of pregnancy, and the fundus when the child is of this weight measures 35 cm. above the symphysis. This then is the starting point of the scale—35 cm. above the symphysis equals seven and one-third pounds (3,300 grams). From this, for purposes of estimating the weight, deduction may be made of 200 grams for every centimeter below 35 cm. Thus, if the fundus measures 31 cm. (this is four weeks before term 31 ÷ 3½ = 62 ÷ 7 =9 lunar months; see article "Duration of Pregnancy") the child weighs 2,500 grams and this weight is to be expected at that time. Induction should rarely be done when the fundus measures below 30 cm. and in fact it is better to do it above this measurement, as 2,300 grams is about the smallest limit of weight that good results for the child are obtained by induction.

If the measurement is above 35 cm., for estimation, add 200 grams for the first centimeter, 200 for the second and 250 for the third centimeter above that weight. When the measurement is above 36 cm., twins should be carefully sought for, as this has been in my hands the first indication I have had of twins on several occasions. Two babies measure more than one.

The measurement should be taken according to the directions for measuring the duration of pregnancy (see illustration) and the tape line should follow the outline of the uterus save at the last dip. It should go horizontally from the highest eminence of the uterine tumor to the upright measuring hand. This measurement must be used in correlation with the measurement of the head, which is about to be described, and one should check the other.

Fig. 2.

Measurement of the head is done through the abdominal wall. The head lies with its longest and most prominent diameter transversely in the pelvis or nearly so, and this is the only diameter which can be obtained. But it is the biparietal diameter that is

wanted. The biparietal diameter of the head fortunately bears a fairly definite relation to the occipitofrontal and so can be deduced from it. For that reason, the occipitofrontal is measured and the biparietal obtained by deduction.

An ordinary pelvimeter of simple construction (fig. 1) is taken and two rings of adhesive plaster, about 1 cm. in width, fastened to each tip. These rings are faced inside with adhesive plaster, back inward, and are made sufficiently large instrument approximated to these points as closely as possible. The weight of the hinge side of the pelvimeter is supported by the finger of an assistant, or may be held up by a string attached to the operator's arm or buttonhole. It is necessary that the hinge side should have free play of movement in order that one or other tip may be depressed if occasion requires. The tips are held firmly against the cephalic poles and the scale is read. This gives the occipitofrontal diameter. No deduction

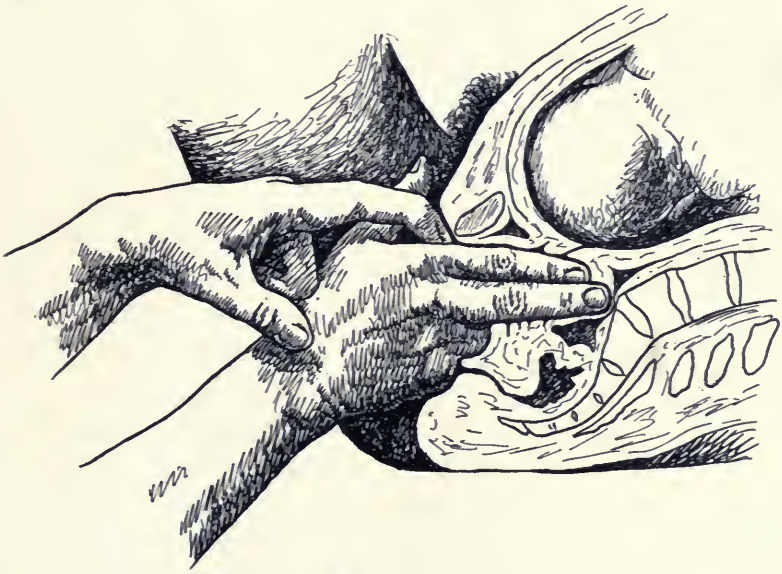


Fig. 3.

readily to admit the middle and index fingers. The knob-like tips of the pelvimeter should project about 1 cm. beyond the palpating fingers.

The patient is laid on her back and the operator stands as if to palpate for the position of the head. An accurate diagnosis of the fetal position, not only in regard to the occiput, but as to the amount of flexion of the head is essential to success. The bladder must be empty. The occiput and sinciput are located; then the fingers are thrust into the rings and the knobs of the is required. This fact is not satisfactorily explained. The abdominal walls of a pregnant woman are very thin (usually less than 1 cm. measured at Caesarean section), and it may be that the exact prominences of the cephalic poles are not reached.

All heads above the brim, or which may be thrust above the brim, can be measured, although the greatest ease is found in thin women with flat pelves which push the head forward. Small heads with much liquor amnii are difficult to fix; breech cases offer no special difficulty. However,

heads lying above the pelvic brim and firmly placed thereon give the best conditions, e. g. in contracted pelves.

The measurement obtained by this means is the occipitofrontal diameter, and from this is obtained the important diameter, the biparietal.

The amount to be subtracted varies with the size of the occipitofrontal. *With an occipitofrontal diameter of 11.25 cm. two cm. are deducted to obtain the biparietal, from 11.5 cm. occipitofrontal 2.25 cm., and from 12 cm. occipitofrontal 2.50 cm.* This amount deducted is based upon the following table of 100 heads measured by me:

TABLE OF MEASUREMENTS OF 100 NEWBORN BABIES.

No. of cases.	O. F. diameter.	Average difference.	Average weight. Grams.
1	10	1.00	2,600
4	10.50	1.55	2,716
8	10.75	1.81	2,975
17	11	1.91	3,100
21	11.25	2.07	3,156
19	11.50	2.26	3,247
9	11.75	2.50	3,313
13	12	2.30	3,514
5	12.25	2.35	4,100
1	12.50	2.50	4,100
2	12.75	3.12	4,350

It will also be noted that the weight bears a fairly definite relation to the size of the head. This is of use in checking up the size of the child, as shown by the author's rule for the duration of pregnancy. As, for example, with a fundal measurement of 35 cm. and an occipitofrontal measurement of 11.50 cm., it can be safely estimated that the fetus is of normal size, 3,300 grams. In this way it is possible to use the fundal measurement and estimated weight as a check upon the cephalimetry with particular accuracy for the purpose of finding this ratio.

These methods have been in use in my hands for seven years and continue to give good results. In all I have measured eighty-four heads before and after delivery. In sixty cases, the occipitofrontal diameter was correctly estimated; in seventeen cases there was an error of 0.25 cm. and in six cases there was an error of 0.5 cm.; and in one case there was an error of 0.75 cm. This last case was not a fair test, as the head was well in the pelvis and could not be properly reached. Skill and practice are decided factors, but the method is soon learned.

In addition to these methods of measurement, an attempt is made to estimate the size of the head in relation to the pelvis. This is done by the Munro-Kerr modification of Müller's method and consists in attempting to force the head into the pelvis by a grasp above, while the lower hand in the vagina gauges a descent of the cephalic pole. Munro-Kerr's modification consists in holding the thumb above the brim of the pelvis as well as the fingers within the vagina.

COMBINATION OF METHODS NECESSARY.

By the use of these three methods it is possible to gain a reasonably sure idea as to the size and weight of the child before labor and so to form some idea of when labor should be induced and what the course of treatment should be. It should be remembered that the average sized child measures 35 cm. fundal measurement, weighs 3,300 grams and has a biparietal diameter of 9.10 cm., and with this as a starting point, the time of induction is easy to reckon for any known pelvis. These figures are based upon my own measurements. My plan is to measure the fetal head and uterine fundus from week to week before labor, and so decide when induction should be done. This should be when the

estimated biparietal is a trifle smaller than the true conjugate.

These methods require some experience and some patience. A combination of the methods gives the best results: he who depends upon one alone will be deluded. The interruption of pregnancy need not be earlier than the amount of contraction requires, and the child need not be exposed to the risk of unnecessary prematurity. It is but seldom advisable to induce labor more than four weeks before term, as then the child would be below the minimum weight, 2,500 grams, for good results. A child of this weight has an average biparietal of 8 cm., the lowermost limit set for induction of labor 8 cm., true conjugate.

Watchful attention and careful measurements in the last weeks of pregnancy avoid the dangers of prolonged pregnancies and large babies, because the size and growth of the child are measured and recognized. Induction may then be done in time. Large babies give more trouble in moderately contracted pelves than does the size of the pelvis. All normal sized babies should be born through a true conjugate of 9.25 cm., equal to the average biparietal diameter, but the big fellows give the trouble. The day will come when a ten-pound baby will become an accusation to the accoucheur instead of a boast to the parents.

The head of a large baby is much firmer, harder, and more difficult to mould than that of a small baby. This alteration in the consistence of the fetal skull of the large child accounts for the trouble he causes even more than does the increase of the diameters of the head. It is the fact that is responsible to a large extent for the success of induction of labor in contracted pelves of moderate degree.

A STUDY OF INTESTINAL STASIS, WITH REMARKS ON THE USES AND APPLICATION OF BISMUTH MEAL.

BY

A. J. QUIMBY, M. D.,

Clinical Professor of Radiography, New York Polyclinic Medical School and Hospital; Radiographer to the New York Foundling Hospital; Consulting Radiographer to the New York Nose, Throat and Lung Hospital; Member of the American Roentgen Ray Society, the A. M. A., Academy of Medicine, etc.

New York City.

The radiological study of the digestive tract during the passage of a bismuth meal has been the means of obtaining data never before possible in many obscure and interesting conditions. It is my purpose to refer at this time to but one of these, viz.: stasis; and under this heading to mention only the usual sites at which the bismuth meal is observed to stagnate, and present a few of the plates taken while studying characteristic cases that we believe throw some light on one of the causes of this condition. My intention, moreover, at the present moment is not to discuss individual cases in detail as that matter will be taken up later in collaboration with the gastro-enterologists and surgeons who have had them in charge. We shall, therefore, present only the findings in the several cases cited and merely call attention to the most frequently encountered conditions.

The bismuth meal rarely meets with resistance in its passage to the lower end of the esophagus except in cases of diverticulum and pressure from neoplasm or stricture from deglutition of caustics. A few cases of spasm near the upper border of the sternum have, however, been reported. At the cardiac opening of the stomach we frequently meet with more

or less permanent contractions which in their earlier stages were probably spasmodic. As neoplasms also develop in this location, whether independently or following the irritation produced in old cases of cardio spasm, differential diagnosis is occasionally difficult.

While these rarer cases are most interesting we wish at present to deal only with stasis as a *functional disturbance* of a *mechanical nature* and will therefore exclude the study of obstruction produced by external pressure or neoplasms of the digestive tract. For our present purpose we also omit tumors, hourglass contractions, diverticula and other lesions occurring in the walls of the stomach itself.

The next site at which a delay of the bismuth meal is observed is at the pylorus. The same causes are operative in producing stasis at the pylorus as those just mentioned in connection with the cardia, and we therefore expect to meet obstructions which are due to local irritation or reflex spasms, which in the case of the pylorus may originate from inflamed areas on either side of and some distance from the pylorus itself; and again we may have the contraction of scar tissue, the benign hyperplasias and the occlusion of the lumen by neoplasms.

The writer is of the opinion that many of the cases previously diagnosed as pyloric spasm have probably been due in reality to duodenal delay. Our present technique allows us to record outlines more in detail by instantaneous radiographs whereas the apparatus and methods employed some years ago necessitated longer exposures during which the peristaltic movements gave rise to much confusion.

Thus we find that a gastric residue is often due to obstruction at the juncture of the first and second portion of the duodenum which may be functional or organic, whereas true pyloric spasm results in a failure to fill the conus duodenalis. Pyloric spasm is noted most frequently immediately after the administration of the bismuth meal and may be merely a slight prolongation of the normal valve action during peristalsis or may be tonic in character and peristant. Much stress has been laid on the shape and position of the stomach in gastroptosis as an important factor in the gastric delay. It has been the writer's practice to study the character of the peristaltic movements fluoroscopically at some length in all such cases which have come under his observation and he has failed to note that this has any definite bearing on the time required for the stomach to discharge its contents. We frequently find a stomach which has reached a considerable degree of ptosis practically orthotonic, and discharging its contents normally, while on the other hand hypotonicity is probably as frequently observed unaccompanied by ptosis. From repeated observations of these phenomena under varying circumstances, I am led to believe that in the absence of lesions of the pylorus or duodenum the tonicity of the gastric musculature is a much more important factor in determining the progress of the stomach contents than the shape or position of the organ.

At the juncture of the first portion of the duodenum, or conus duodenalis with the second or descending portion, stasis may frequently occur, but at this site we find the lumen of the gut decreased by another cause which does not apparently influence to any great extent the upper portions of the digestive tract but is one of the principal factors here and at each of

the succeeding locations at which we find the bismuth meal retarded, viz.: *ptosis*. Ptosis acts at this point as at the subsequent sites in two ways: The lumen of the gut is actually narrowed and in addition a sharp angle in the intestine is formed which results from the tension across the fibers of the suspensory (duodeno-hepatic) ligament.

Here however we must consider the degree of ptosis and the organs involved and recall that the attachment and anatomical relations of the duodenum are very variable. Some anatomists describe six forms of the duodenum. Others as Piersoll compare certain percentages to the letters C. U. V., etc., and state that 30% of those examined are so irregular that they are indeterminate and unclassified. Our observations lead up to accept this latter description. In the erect position we observe all of these shapes much altered.

The first three to five c. m. of the duodenum are usually freely movable but even in advanced cases of splanchnoptosis it is not unusual to find the duodeno-hepatic ligament normal and the pylorus and second portion of the duodenum sagging downward and to the right; this tension on the suspensory ligament causing a sharp angulation and great decrease in the lumen at the junction of the first and second portion. While in other cases of ptosis where the liver is involved we have observed at operation a number of instances in which this ligament had been attenuated and its attachment weakened so that what corresponded to new mesentery had been formed which permitted free movement of this part of the gut and obviated this cause of stasis as usually observed in ptosis.

When the weight of the gut comes on the duodeno-jejunal suspensory muscle causing a similar angulation and constriction at this point we observe the entire duodenum dilated by the bismuth meal. It is frequently difficult to study this portion of the intestine in detail owing to its position behind the stomach and transverse colon and owing to the fact that only in the erect position may the effects of tension be satisfactorily demonstrated radiologically. It will be readily understood that the force of gravitation causes the contained bismuth to quickly drop away from the suspended portion of the gut when this position is assumed so that special conditions must be arranged and the meals timed by experiment in order that the colon and stomach may be nearly empty. Even when this is done with great care an intermittent pyloric spasm will occasionally prolong the examination unexpectedly. The baneful effects of duodenal stasis have been attributed to a special toxine which is formed in the duodenum when its function is interfered with. This theory has been quite well established by biological experiments recently conducted by several investigators in the laboratories of Johns Hopkins University. It is probable that the results of ptosis at the duodeno-jejunal flexure are more insidious and intermittent than we have yet been able to demonstate owing to the fact that the musculus suspensorius duodeni is composed of unstriated muscular fibres the tonicity of which may vary its action. As stated the obstacles to systematic study of the duodenum are greater than in other parts of the digestive tract but as the symptom complex which is observed in the cases in which accentuation of the duodeno-jejunal flexures resulted in demonstrable dilatation of the duodenum correspond so closely with other cases in which the only

radiographic evidence of constriction was a slight delay or bubbles of gas in the duodenum that we feel sure this region deserves the most detailed study.

From this point to the terminal ileum no suspensory ligaments of more solid texture than the rest of the mesentery are normally found and consequently cases of stasis in the jejunum and course of the ileum are rarely observed except when the lumen of the gut is decreased by external causes, such as dense adhesions resulting from the extension of inflammation from adjacent organs, general peritonitis, gun shot wounds and other external factors. Occasionally, however, we find small loops in the jejunum or ileum which dilate and delay for a time the progress of the contents but as changes in the position of the patient cause these to disappear it is probable that they are due to insignificant adhesions.

In the terminal ileum, however, we find operative all the causes above mentioned and in addition the immediate effect of stasis in the subsequent parts of the bowel, the fact that masses in the cecum may interfere with the operation of the ileocecal valve and also the close proximity of that ubiquitous trouble maker, the vermiform appendix.

As the details of stasis in the terminal ileum and the special factors involved have been lucidly described and classified by Lane and Jordan we only add in this connection that while it is gratifying to be able to show in advance the exact condition and cause of stasis it is our belief that the simple radiographic proof of stasis at this point is sufficient ground for laparotomy. We admit this may sound radical to some but our observations of each operated case and the results to date, have strengthened our convictions. We do, however, take issue with a few surgeons, whose number is fortunately diminishing, who habitually attribute varying syndromes to the lower right quadrant of the abdomen and in the absence of radiographic proof of ileac stasis attempt to ameliorate the condition by the removal of Jackson's membrane, cecal adhesions, or an adherent appendix without a radiographic study of the entire digestive tract, as we have shown that these are in many cases nature's attempts to protect organs that are subjected to undue stress and that simply freeing the gut from these adhesions may lead to the formation of more serious kinks and twists as ptosis progresses.

One of the results of stasis in the cecum which is frequently noted and which no doubt plays an important part in autointoxication is insufficiency of the ileocecal valve which permits the bacteria ladened contents of the large bowel to regurgitate into the ileum for a considerable distance. The incompetency of this valve is shown by the free passage of the bismuth enema into the ileum. We have even shown Lane's kinks by this method which had been undemonstrable by the bismuth meal. The folds of mucous membrane which constitute the valve should be considered as similar in their action to the semilunar valves of the heart. Thus we may find their failure due to dilatation of the cecum or to ulcerative processes which destroy part of their surface, or conversely we may find the opening stenosed by contracting scars or by the tension of the loaded bowel on dense adhesions.

In our experience and according to the observations of all radiologists with whose work we are familiar nearly all adult fe-

males and a very large percent of adult males of sedentary habits who come under observation suffer some inconvenience from dilatation of the cecum which of course is concomitant with a variable degree of stasis at this point.

We are well aware that dilatation of the cecum and ilio-cecal incompetence present many difficulties from a surgical standpoint but in a large majority of cases the radiographer is able to demonstrate the causes. In the study of the large intestine much valuable information may be obtained by horizontal fluoroscopy. With suitably arranged conveniences the patient may be placed in different positions and the gut carefully manipulated with the protected hands or wooden fingers or spoon while the rays are directed to the point being studied.

I have frequently discovered adhesions between different parts of the colon or sigmoid and other organs or adherent appendices by this procedure which were obscured by other shadows while the patient was in the prone or recumbent position. In nearly all of these cases there are present angulations or constrictions of the colon or evidences of obstruction near the hepatic flexure. Many when erect have a moderate degree of ptosis of the transverse colon which interferes with its function and produces colonic stasis but in the absence of permanent angulations or adhesions the colon drifts up to a relatively normal position when the patient is prone. But when angulations and constrictions are maintained by dense adhesions at the flexures or in the transverse colon we have observed that the benefits of the rest cure when prescribed for conditions arising from auto-intoxication, are greatly diminished.

In the ascending and transverse colon are frequently observed sharp angulations which it is impossible to change materially by manipulation or placing the patient in any of the surgical positions, and as these angulations are only observed in the cases in which stasis is one of the principal factors we have been led to believe that they follow well know hydraulic laws and cause most serious interference with the functions of the intestine at this point. This belief has been strengthened by a theory advanced by Holtznecht that the onward movement of the feces through the colon is not continuous but intermittent. According to his fluoroscopic observations which have also been witnessed by a few others the normal bolus is not advanced from the cecum to the rectum by a series of contractions such as take place in the small gut but that the sphincter of the haustra is inhibited simultaneously along several inches of the colon at one time and that during this instance a filiform movement of the longitudinal fibers advances the entire contents a considerable distance when the haustrations (sacculations of the colon) immediately reform and that this position is maintained for a few hours when the process is again repeated.

My own observations have led me to accept this theory. I have also noticed in cases in which there was accentuation of the hepatic and splenic flexures without adhesions of sufficient density to change the relative position of the gut on either side of these flexures considerable delay occurs in the passage of semisolid bowel contents at these points.

Dr. Pfahler has recently pointed out a form of stasis which is marked by collections of gas at the splenic flexure which causes dilatation and interferes with peri-

stalsis. We have occasionally noticed a similar condition in loops of the small intestine causing stasis during the passage of the bismuth meal but this condition should not be confounded with the gas regurgitated from the colon in cases of patulous ileocecal valve.

The sigmoid however is to my mind a point of even greater interest than any of those mentioned. In over 200 cases examined for ileac stasis redundant sigmoid was demonstrated in 35% and in 50% there was evidence of dilatation or obstruction in the sigmoid. In many the dilatation extended throughout its entire length causing the sigmoid to reach the splenic or hepatic flexures. In others constrictions appeared at definite points where the sigmoid was held up by adhesions to the cecum or colon or bound down by attachments to pelvic structures. As is well known the sigmoid in infancy is much longer in proportion than in adult life and as has been frequently pointed out by Jacobi and others is one of the dominant factors in producing constipation in infants. As the child acquires the erect position this portion of the bowel and the numerous loops which it assumes in the abdomen (which are often found in the right ileac fossa) receive the impact and are obliged to sustain the weight of the superimposed coils of intestine. Thus its functions are interfered with not only by direct pressure but by the fact that it is forced into acute angulations. This condition being maintained through childhood the involution of the sigmoid to its normal position and length is materially delayed. This condition of stasis in the sigmoid naturally produces stasis in the remainder of the colon. The weight of the overloaded colon causes undue tension on the mesentery resulting in ptosis. As this condition progresses there is not only interference with the function of the muscular coats of the bowel but a passive hyperemia develops which interferes with nutrition and innervation so that in turn all the supports of the entire abdominal contents are subjected to undue stress during their development which is also the period of greater activity and indiscretion. Thus we frequently observe that in individuals suffering from splanchnoptosis there is present a redundant sigmoid looped in various directions at either or both sides of the abdomen and one or more sharp angulations in the ascending and transverse colon and not infrequently the mild inflammatory processes within and without the bowel have been sufficient to cause the formation of adhesions of varying densities between these organs, the omentum and adjacent structures. Very naturally there is in addition to the constipation a greater or lesser degree of auto-intoxication with all its resulting nervous and trophic symptoms.

It should also be borne in mind that in the absence of adhesions or constrictions a very large redundant sigmoid readily demonstrated radiologically by the bismuth enema may be overlooked by the surgeon as the preparation for operation requires the emptying and cleansing of the bowel which allows this organ to contract to its smallest size. This was well illustrated in a recent case in which the writer reported adhesions around the cecum and ileum with redundant sigmoid which explained the habitual constipation from which the patient had suffered for years. The surgeon removed a Jackson's membrane but reported the sigmoid as normal in size.

It has been our privilege to examine a number of patients in which gastro-enteroptosis had advanced to a considerable degree and in which redundant sigmoid, colonic angulations and ileac stasis were present without serious inconvenience but we have observed in a number of them disastrous results following comparatively slight causes such as mental strain, shock, trauma, etc., which lead us to believe that these conditions greatly lower the vitality and decrease the ability of the individual to withstand undue strain.

In recapitulation we submit that the radiological study of the intestinal tract not only affords a convenient means of determining the size, outline and position of the organs but that by instantaneous exposures in rapid succession we are able to record their movements and by stereoscopic plates determine their relation; that this method of examination enables us to determine the sites at which stasis occurs and the time required for each part to perform its function and in the vast majority of cases point out the character and location of the lesion causing delay. In this connection we would suggest that, as the average time required for a meal to pass from the stomach through the small intestine to the cecum and transverse colon is about six hours and any delay beyond this period is considered as stasis, it would be convenient to designate the amount of stasis under four or more general terms. Thus if the bismuth meal remains in the ileum more than six and less than eight hours it would constitute stasis of the first degree, from eight to ten hours the second degree, from ten to twelve hours the third degree and from twelve on the fourth degree.

We also submit that as such important data may be conveniently and safely obtained it should be a routine practice to examine all chronic cases in which the symptoms may be attributed to disturbance of the gastro-intestinal functions; and it is the writer's belief that as this custom becomes general it will be found that ptosis is one of the most important primal factors causing stasis; that its action is largely mechanical and that when neglected is automatically progressive and plays a considerable part in the development of serious complications.

40 East 41st Street, New York City.

KEY TO RADIOGRAPHS.

S. Stomach.
D. Duodenum, { D′ 1st Part. D″ 2nd Part. D‴ 3rd Part.
P. Pylorus.
U. Umbilicus.
I. Ileum.
A. Appendix.
C. Cecum.
A. C. Ascending colon.
H. F. Hepatic flexure.
T. C. Transverse colon.
S. F. Splenic flexure.
D. C. Descending colon.
Sg. Sigmoid.
R. Rectum.
D. J. Duodeno-Jejunal Juncture.

P. Point of Tenderness.
—|| Radiated Pain.
Ad. Adhesions.
Cn. Constriction.
Dl. Dilatation.
An. Angulation.
LK. Lane Kink.
L. Loop.
R. Residue.
St. Stasis.
Pt. Ptosis.
Ul. Ulcer.
N. Neoplasm.
Dv. Diverticulum.
P. C. Peristaltic Contraction.
RP. Reverse Peristalsis.
Dt. Deformity.

Notes explaining Radiographs continued on page 252.

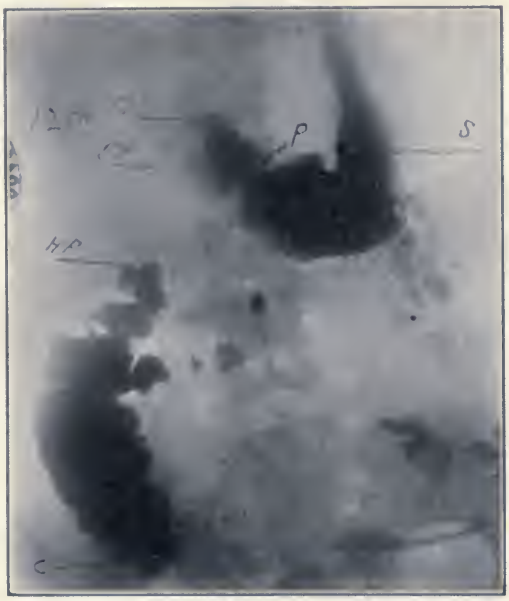


Fig. 1.—See Case 1.

Fig. 2.—See Case 2.

Fig. 3.—See Case 3.

Fig. 4.—See Case 4.

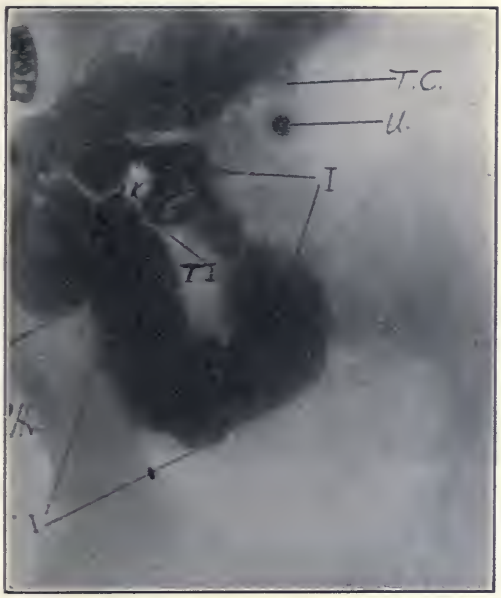


Fig. 5.—See Case 5, same as Case 2.

Fig. 6.—See Case 6.

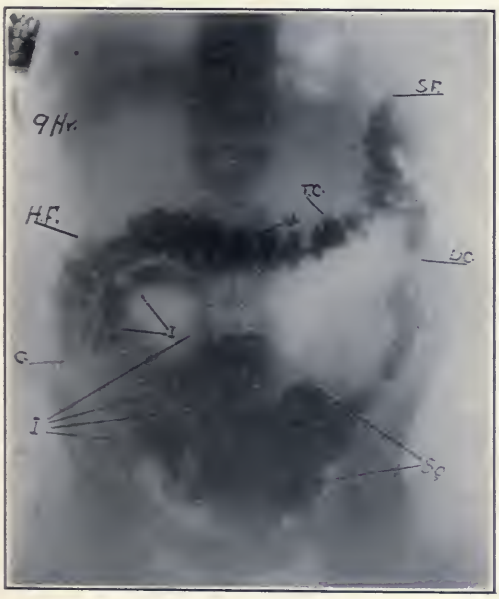


Fig. 7.—See Case 7.

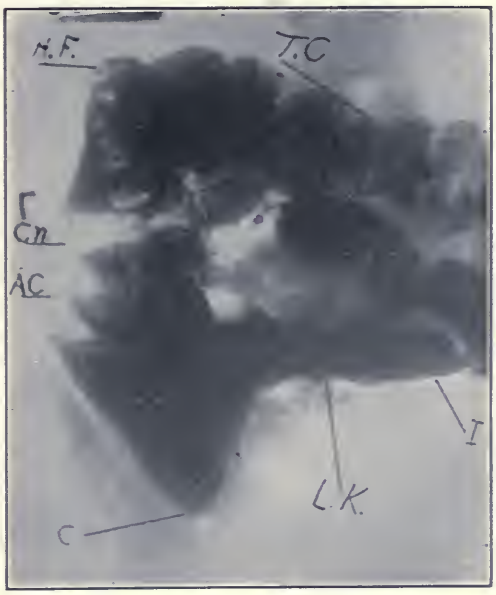


Fig. 8.—See Case 8.

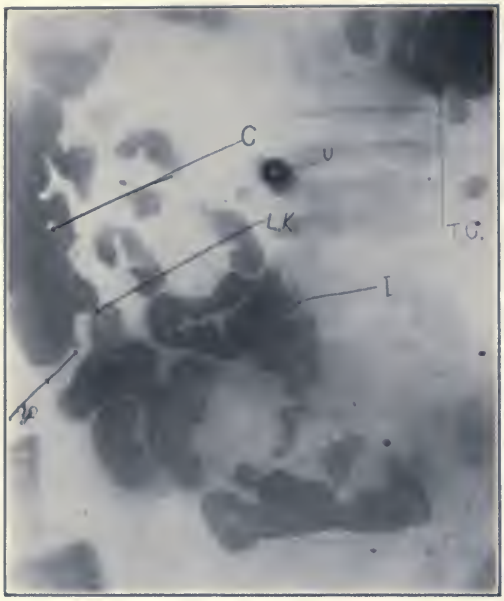


Fig. 9.—See Case 9.

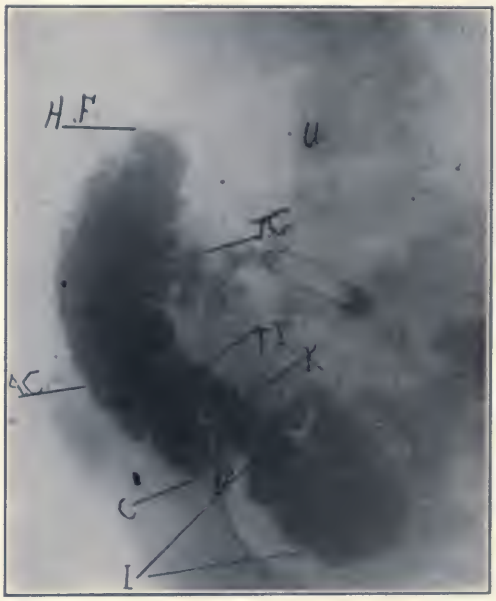


Fig. 10.—See Case 10.

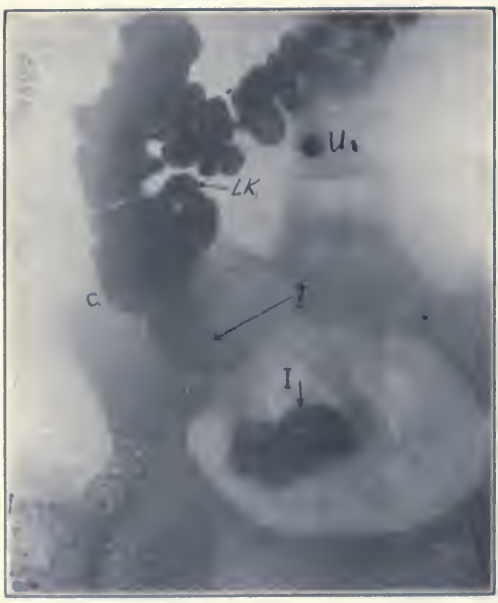


Fig. 11.—See Case 11.

Fig. 12.—Same as Case 11.

Fig. 13.—See Case 13.

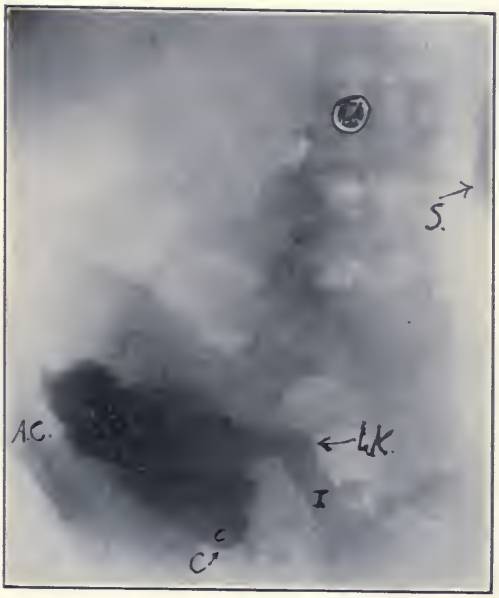


Fig. 14.—See Case 14.

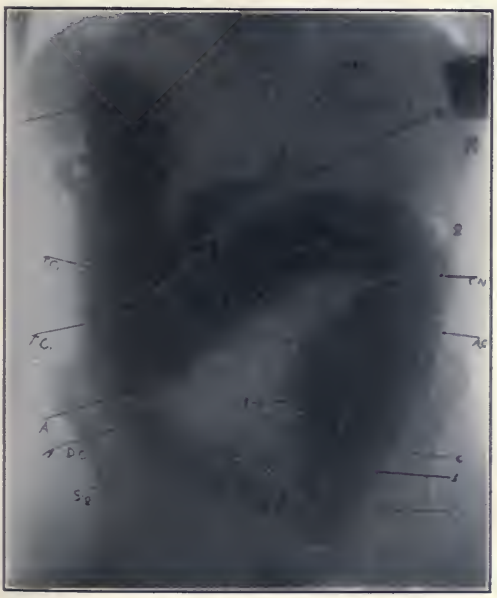


Fig. 15.—See Case 15.

Fig. 16.—See Case 16.

Fig. 17.—See Case 17.

Fig. 18.—See Case 18.

Fig. 19.—See Case 19.

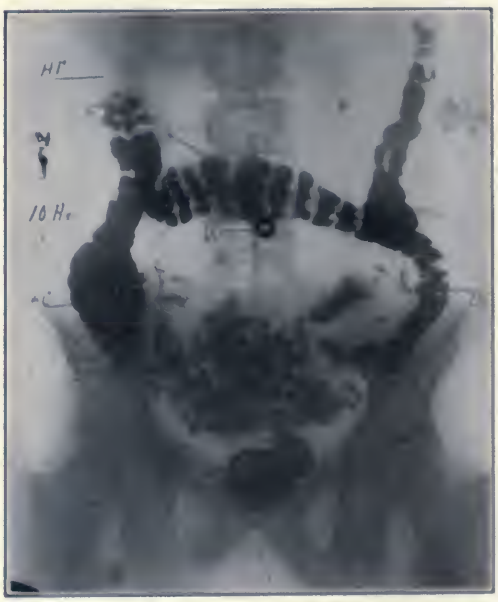


Fig. 20.—See Case 20.

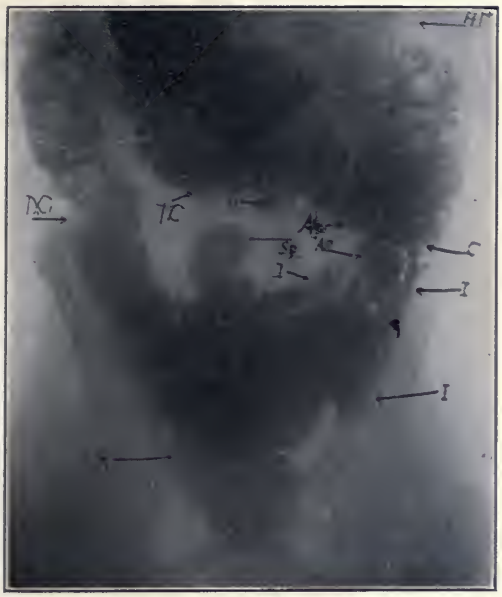


Fig. 21.—See Case 21.

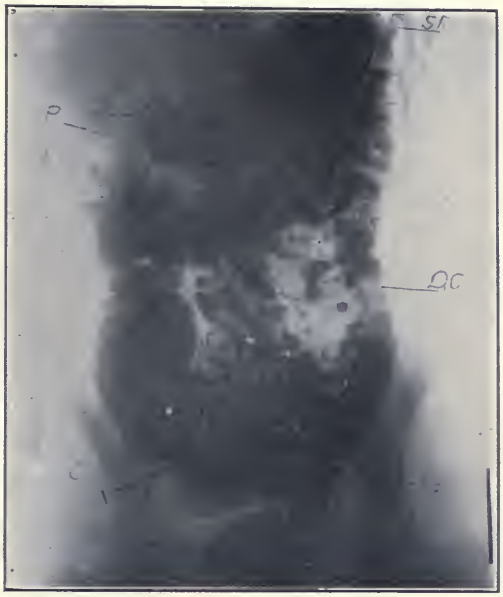


Fig. 22.—See Case 22.

Fig. 23.—See Case 23.

Fig. 24.—See Case 24.

Fig. 25.—See Case 25, same as Case 9.

Fig. 26.—See Case 26.

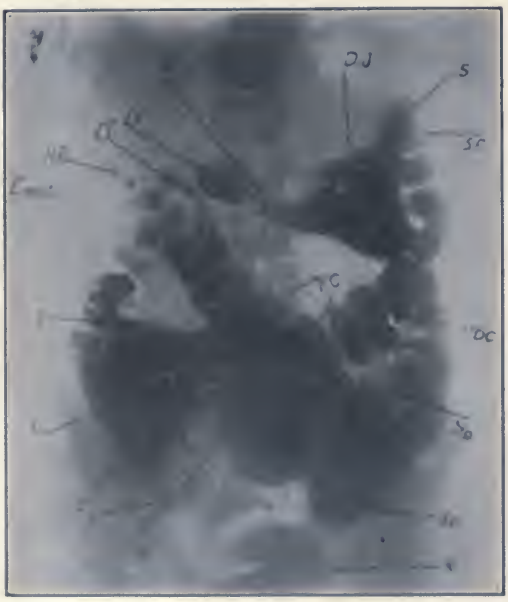


Fig. 27.—See Case 27.

Fig. 28.—Same as Case 27.

Fig. 29.—See Case 29.

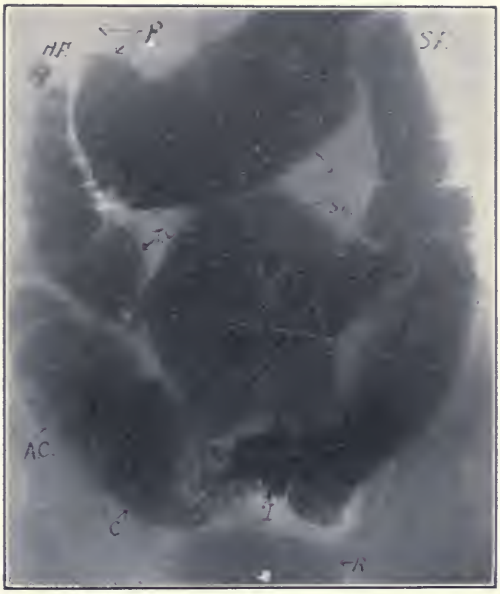


Fig. 30.—See Case 30.

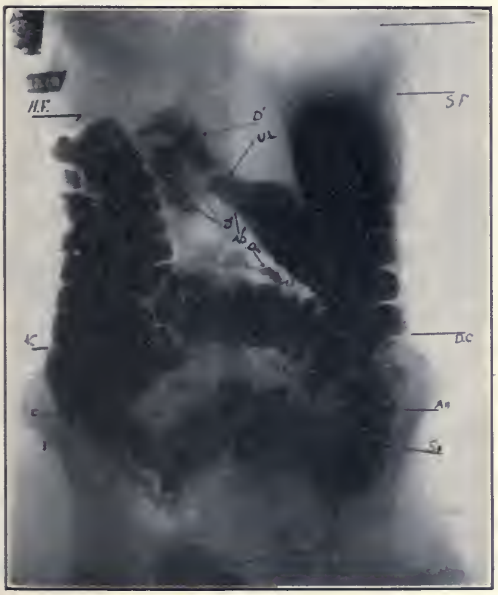


Fig. 31.—See Case 31.

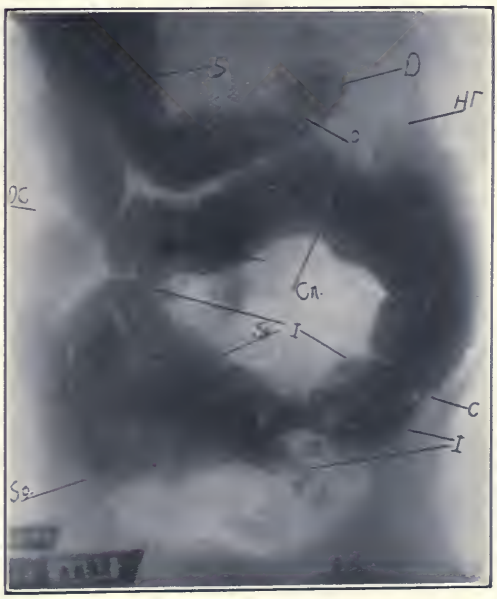


Fig. 32.—See Case 32.

NOTES EXPLAINING RADIOGRAPHS.

Case No. 1. Miss D. Referred by Dr. Cash.

Incomplete Obstruction at the first and second portions of the duodenum. The gastric delay was twelve hours. In this radiograph it will be noticed that the pylorus readily permits the gastric contents to pass into the duodenum; while the second portion of the duodenum has a small quantity of bismuth within it. Delay also occurs at the hepatic flexure due to adhesions between the ascending and transverse colon.

Case No. 2. Miss L. Referred by Dr. Graves.

This radiograph illustrates the position of the duodenum when the patient is standing. The duodenum here is filled with gas. With its high position, the pointed apex of the conus duodenalis illustrates how it becomes constricted when suspended by the supporting ligament.

Case No. 3. Mr. P. Referred by Dr. Graves.

Clinical findings:—Gastric ulcer. In the radiograph it will be noted that on the lesser curvature there is a flattened surface diagnosed as ulcer. The conus duodenalis is large. The long arm of the ileum has two constrictions; one from its position and relationship to the appendix would indicate that the appendix is adherent to the ileum while that marked K. is evidently a kink.

Case No. 4. Miss D. Referred by Dr. Cash.

History of intense constipation all through life. Is now a neurasthenic. The noticeable feature in this radiograph is the very large duodenum with a large pyloric ring. The gastric delay is due to obstruction at the juncture of the first and second portion of the duodenum. The sigmoid is very large and in the erect position extends almost to the umbilicus.

Case No. 5. Same case as No. 2.

The terminal ileum consists of a number of dilated coils ending in a final loop extending upward toward the transverse colon and having a kink. It will be noticed that this is a nine hour ileac delay.

Case No. 6. Miss O'L. Referred by Dr. Kellogg.

Clinical history of ulcer. Radiographic findings:—Mucous ulcer near the pylorus and ileac stasis of unknown origin but probably due to a patulous ileo-cecal valve.

Case No. 7. Mr. M. Referred by Dr. Hayes.

History of numerous abdominal operations, among them appendectomy. Patient was neurasthenic and although well nourished had been unable to work for a long time. Radiographic findings:—Repeated stasis tests demonstrated prolonged ileac delay. The terminal ileum dilated and extending upward toward the transverse colon before entering the ileo-cecal valve. Redundant sigmoid. Operated.

Case No. 8. Mrs. C. Referred by Dr. Grant.

Previous illness fever: cause unknown. Present condition is of three years duration. Pain immediately after eating and lasting two hours. Has visible gastric peristalsis. No abdominal tenderness. This radiograph is one of a number which demonstrated ileac stasis due to a kink. The principal feature here presented is the dilated terminal ileum in an unusually high position and entering the colon at right angles. Operated.

Case No. 9. Mr. S. Referred by Dr. Hayes.

Was neurasthenic. History of chronic constipation; about ten years previous had sufferred some distress in the region of the appendix. Radiographic findings:—Some gastric deformity; probably old ulcer. There is not much ileac delay, although a kink exists. The position of the appendix would suggest that it is probably adherent to the ileum. In this radiograph the constriction in the terminal ileum due to the kink is a type that we freuently see and is obtained by the patient being radiographed in the prone position.

Case No. 10. Miss K.

History of epigastric pain, tenderness in the right side, constipation and skin eruptions. Duration of symptoms about six years. X-ray findings: Gastric ulcer. Ileac stasis of the second degree. Adherent appendix. Dilated cecum. Redundant sigmoid. This radiograph calls attention to the terminal ileum and adherent appendix. Operated.

Case Nos. 11-12. Miss H. Referred by Dr. Kleman.

Previous history of diabetes. At present is suffering from pain in the stomach and frequent vomiting. Radiographic findings:—Adhesions of the gastric omentum. Pyloric spasm. Adhesions of the duodenum. Ulcer of the duodenum. Ileac stasis due to a Lane kink and patulous ileo-cecal valve. Colonic stasis and redundant sigmoid.

Case No. 13. Mr. J. Referred by Dr. Bishop.

History of recurrent attacks of appendicitis. The radiograph shows the terminal ileum kinked by an adherent appendix. Operated.

Case No. 14. Miss B. Referred by Dr. Mosher.

Radiographic findings:—General ptosis. Dilated stomach. Retention in the first portion of the duodenum. Ileac delay. Lane Kink. Dilated cecum and ascending colon. Operated.

Case No. 15. Mr. C. Referred by Dr. Hayes.

Radiographic findings:—In this plate the contents of the ileum are from the enema and an ileac kink is demonstrated with a dilated cecum and ascending colon probably due to

the constriction in the ascending colon just below the hepatic flexure. Ulcer was also reported in this case. At the operation the complete vicious circle was found to be present.

Case No. 16. Mrs. B. Referred by Dr. Humphreys.

History of repeated attacks of appendicitis. Radiographic findings:—Probable adhesions of the gastric omentum. Small pyloric ulcer. Adherent appendix. Some indications of a Lane Kink (this was difficult to determine because of the arrangement of the bismuth in that test). A moderately constricting band just below the hepatic flexure. Some interference in the transverse colon at the juncture of the second and third portions resulting in delay in the colon. Patulous ileo-cecal valve. A small redundant sigmoid.

Case No. 17. Miss MacK. Referred by Dr. Tovey.

Clinical findings:—gastric ulcer. Radiographic findings:—Ulcer of the lesser curvature. Adhesions between ascending and transverse colon. Patulous ileo-cecal valve and ileac kink probably due to adherent appendix. This radiograph was taken immediately after enema and meal. It will be seen that the enema has entered the terminal ileum and that the transverse colon apparently springs from the ascending colon just above the ileum. The operative findings in this case confirmed the radiographic.

Case No. 18. Case referred.

The history is that of repeated attacks of headache and biliousness with persistant constipation. This radiograph demonstrates the existence of a patulous ileo-cecal valve as it exhibits bismuth within numerous coils of the ileum.

Case No. 19. Mr. B. Referred by Dr. Lynch.

History of migrain since childhood. Has been treated for sigmoid trouble and hemorrhoids. The principal features about the radiograph are the sigmoid loop and the enormously distended and ptosed cecum; as can be readily seen the cecum rests very low in the pelvis.

Case No. 20. Mr. A. Referred by Dr. Nisbet.

This case is one of suspected malignancy. The radiograph is exhibited to illustrate the distribution of bismuth when ingested. The bismuth meal has reached the rectum while some remained in the terminal ileum. As there was some gastric delay it may account for that remaining in the ileum. It will be noted that the cecum is very much dilated.

Case No. 21. Mr. H. Referred by Dr. Graves.

Patient's age 12. Had suffered repeated attacks of constipation and bilious headaches usually being confined to bed. The radiograph illustrates how stasis can occur from adhesions between the ascending and transverse colon. The appendix is large and club shape. The sigmoid is large and extending well up into the abdomen. The operation confirmed the findings.

Case No. 22. Miss O. Referred by Dr. Cossitt.

History is not very definite. There were gastric symptoms and constipation. The radiographic findings:—Adhesions of the duodenum. Ileac stasis probably due to a Lane kink. As the enema passed into the ileum, the ileo-cecal valve is patulous.

Case No. 23. Miss H. Referred by Dr. Hayes.

The principal features about this case is the size of the sigmoid and the ascending colon. A Lane kink was demonstrated by other radiographs.

Case No. 24. Mr. M. Referred by Dr. Nisbet.

The cecum does not contain bismuth, probably due to the position in which it lies. The terminal ileum can be seen swinging around in front of the colon. The sigmoid is very much distended and has some constriction in its upper half.

Case No. 25. Same case as No. 9.

The interesting feature of the radiograph is the position of the sigmoid.

Case No. 26. Mr. de C.

Patient has had gastric symptoms for twelve years consisting principally of fermentation and pain at all times. Radiographic findings:—Slight deformity and gastric spasm. Other plates revealed the existence of gastric ulcer. The principal feature in this case is the position of the sigmoid extending over almost to the cecum.

Case Nos. 27-28. Mr. N. Referred by Dr. Lynch.

Radiographic findings:—Gastric adhesions. Ileac stasis. A very large redundant sigmoid. At one examination the sigmoid was demonstrated extending up to the splenic flexure. Number 28 was taken with the patient prone, which permits the sigmoid to move upward into the abdomen.

Case No. 29. Miss L. Referred by Dr. Graves.

History of appendectomy and hysterectomy. The sigmoid will be seen extending up toward the left while the cecum rests in the pelvis. Where the ascending colon passes over the brim of the pelvis the pressure of the bone causes an indentation. This case did not have ileac stasis although the enema regurgitated into the ileum. The position of the terminal ileum would suggest that when the patient is erect, gravity would aid in its contents being emptied into the colon.

Case No. 30. Miss R. Referred by Dr. Kellogg.

History of gastric trouble of 17 years duration. Symptoms vomiting especially late in the day. Pain over the epigastrium. Constipation. Occasional intermissions of two weeks duration. Radiographic findings:—Incomplete pyloric obstruction. Gastric retention persisting beyond 32 hours. Ileac stasis. Incompetent ilio-cecal valve. Very much dilated sigmoid extending up above the umbilicus. Patient improved with rest cure. This is probably a case of obstruction at the juncture of the first and second portion of the duodenum.

Case No. 31. Miss B. Referred by Dr. Hayes.

Had dysentery for nine months while teaching in India. Recently while under treatment has gained in weight. The present symptoms are constipation and intermittent diarrheas. Pain over the left epigastrium. Radiographic findings:—Ulcer of the lesser curvature. Adhesions of the gastric omentum. Duodenal delay. Ileac stasis due to kink. Angulation of the left transverse colon due to adhesions.

Case No. 32. Mrs. W. Referred by Dr. Bainbridge.

History of previous operations. Radiographic findings:—Adhesion to the terminal ileum producing ileac stasis. Patulous ileo-cecal valve. Adhesions of the hepatic flexure. Constriction in the transverse colon. Incomplete obstruction of the juncture of the first and second portion duodenum. Redundant sigmoid. Adhesion of the sigmoid. Confirmed by operation.

AN EXPERIMENTAL THERAPY IN HAY FEVER.[1]

BY

S. FULLER HOGSETT, M. D.,
Pittsburg, Pa.

Members of the medical profession have written many articles in the past on the subject of hay fever but it still remains, with reference to its etiology, a disease of mystery. As far back as the year 1565 Botallus reported a case. Again in 1673 Von Halmont and in 1698 Floyer of London called attention to this condition. In Good's "Study of Medicine" there is reference to a case related by Timaeus in 1667 of an attack of asthmatic nature caused by the odor of roses and ipecac.

The eighteenth century also brought forth its quota of articles. Parry of London reported a case in 1809 and another in 1811. Also Elliston in 1821. Bostock in 1819 found that the disease was known to the laity but was not recognized as a disease of special pathology, by the medical profession. Bostock held that moist heat, sunshine, dust and fatigue were more potent in its causation than emanation from dry hay.

It remained for Dr. Elliotson of London, in 1833, to first point out the probable action of pollen as a causative factor and to also oppose the Bostock theory of heat and to reject the hay theory of its origin.

In 1867 the nervous origin of the disease was first advanced by Dr. William Pirrie who cited two forms,—one a spasmodic, caused by external irritants, the other arising from the action of light and heat on the various nervous systems. In 1869 Helmholz claimed to have isolated an organism which caused the various symptoms. Corroborative evidence along this line was never brought forth and it has been generally discredited. These and many others have reported their experiences and advanced theories as to the etiology, their findings being accepted for a day, in whole or part, when some new theory was suggested.

Altogether much work has been done, many theories have been elaborated and many forms of treatment have been called to the attention of the medical profession. A strain of pessimism regarding the possibility of a cure in this condition appears in the writings of many authors. No one

[1]Read at Meeting of University of Pittsburg Medical Society, November 22, 1912.

theory accounts for all features of the affection and the many etiological factors.

In the first place the nomenclature is very misleading. The disease is variously known as hay faver, hay asthma, rose cold, annual asthma, autumnal fever, ragweed corasthma and many others.

Of the many theories advanced I quote from "Sajous" for example: "I do not regard hay fever in its active form as a disease *per se* but merely as a symptom-complex of a sudden cessation of the inhibitory functions of the nerve centers presiding over the physiological processes of the upper respiratory tract. These nerve centers under the influence of hereditary or acquired disease of an adynamic type, are able to carry on their functions under ordinary circumstances; but when demand is imposed upon them for inordinate activity they give rise to the symptoms observed after section of the spheno-palatine ganglion or of the cervical sympathetic as shown by Claude Bernard, most marked of which is hyperesthesia. Hence the name hyperesthetic rhinitis submitted by me some years ago in lieu of the absurd term 'hay fever.' Habit and psychical impressions, as is usual in the case of neurotic disorders of an adynamic type, may play, in an especially sensitive individual, an active part in the production or cessation of the symptoms. * * * * * * *

The presence of asthma as a complication indicates the implication of a greater central field than that affected when the nose alone is the seat of paroxysm. This appears to account for the presence of asthma in only a proportion of cases. The main predisposing influences are, in my opinion, the diseases of childhood and disorders inherited or acquired tending to induce adynamia i. e., a lowered cellular activity affecting the nerve centers alluded to. The arthritisms of the French and the gouty or uric acid diathesis (Bishop) being but results of deficient cellular activity, merely represent, from my standpoint, a single though important class of factors among the many that are capable of promoting the vulnerability of the nervous centers previously weakened through acquired or inherited adynamia."

During the treatment of a case of pulmonary tuberculosis by mixed infection phylacogen by one of our confreres, the patient's symptoms of hay fever, complicating his pulmonary condition, were promptly relieved. To determine whether or not this was a coincidence treatment with phylacogen was instituted, in a series of cases of uncomplicated hay fever.

If the results, as later indicated, from the phylacogen treatment of hay fever, are borne out, it would seem to indicate that a bacterial invasion is directly responsible for the symptoms, independent of any irritant action of pollen or other matter.

This would explain the supposed psychic element advanced as a reason for the attack when it appears without possible irritation from pollen, etc., or when the patient anticipates the attack and the paroxysm follows in order, or when an attack appears as the result of the suggestion of an exciting cause; or again, when an attack occurs independently of consciousness, the patient awaking with a copious rhinorrhea or an incipient attack of sneezing. Of the predisposing causes, the neurotic element stands out prominently. This may be either acquired or inherited.

In either case you have present a predisposing factor that presents a lowered resistance or vitiated nerve force. Given a lowered resistance the chances for a

bacterial invasion are much enhanced.

In addition, in these cases, you have a hypersensitive nasal mucosa as a causative factor. Hyperesthetic areas may be anywhere on the mucous membrane covering the inferior and middle turbinate bodies, the middle meatus, the floor of the nose, and that part of the septum below the limit of the olfactory membrane.

Structural defects may be present and are predisposing.

Chronic catarrh, hypertrophy of the turbinates, polypi, deviated septa, nasal spurs, tumors and adenoids, must be reckoned with as contributing factors as they tend to lower resistance and furnish a possible field for infection.

Back of all these you have the main predisposing factor, that of an abnormally sensitive or depleted condition of the nerve centers. From whatever cause you have a local condition of vaso-motor paresis. When you consider that the mixed infection phylacogen used in the treatment of the cases reported below as a bacterial derivative obtained by incubating twelve to fourteen or more strains of different bacteria in a suitable media, the removal of all organisms by filtration through porcelain, the filtrate which is used being preserved by the addition of a small amount of phenol, the results noted below would lead to the contention that hay fever is primarily a mixed infection.

In the past the treatment advocated has been, principally, local. Many drugs have been tried as have serums and antiserums without much benefit except for a temporary relief. The use of adrenalin chloride in a weak solution has been, in all probability the most satisfactory local application. The same product is also given by mouth or hypodermatically and has proven of value in controlling the symptoms.

In addition to these the carrying out of a rigid tonic treatment for some little period before the expected attack is an excellent procedure.

If we can raise the general tone of our patients and increase their power of resistance, we will mitigate the severity of their attacks, even if we do not eradicate the disease.

In carrying out the phylacogen treatment I have found that the initial dose should be small when given either subcutaneously or intravenously. It has been my procedure to begin with a two c. c. dose subcutaneously or one-half c. c. intravenously. The ultimate result is the same whether given under the skin or into the vein. The reactions come on more quickly when the dose is thrown into the vein and are usually more severe.

In giving the subcutaneous injection, I usually select the insertion of the deltoid or the area just below the scapulae. The latter seems to be the ideal spot as absorption takes place very readily and the complaints from the local reaction are much less. I repeat my injection either daily or on alternate days, the interval to be determined by the clinical condition of the patient. It is seldom necessary more than from four to six injections, the symptoms often disappearing after the second or third injection. Almost immediate relief is noted by the patient. The irritating discharges from the eyes and nose are diminished in amount, the sneezing is lessened, the dyspnea is relieved and the patient usually sleeps comfortably. All cases that I have treated successfully have remained well through the season. I have yet to record only one failure but I

have not had a sufficient number of this class of cases as yet to warrant a positive claim that this remedy will act in all forms of this disease.

The following case histories are appended to show dosage, results, etc.

Case 1. F. H., age 21, male, single. Att. M. D., Dr. S. F. Hogsett. Diagnosis, hay fever. History. Has been subject to hay fever attacks for years. Presented the usual symptoms of a severe attack of hay fever this year.

9/4/12 M. I. P. 2 c. c. subcutaneously. No reaction.

9/6/12 M. I. P. 2 c. c. subcutaneously. No reaction. Some improvement noted.

9/7/12 M. I. P. 2 c. c. subcutaneously. No reaction. Still improving.

9/10/12 M. I. P. 5 c. c. subcutaneously. No reaction. Hay fever symptoms absent.

9/14/12 M. I. P. 5 c. c. subcutaneously. No reaction. No symptoms.

Discharged cured.

Note.—Still well 10/20/12.

Case 2. M. C. M., age 19, male, single. Att. M. D., Dr. S. F. Hogsett. History. Presented with all the usual symptoms of this disease. Unable to sleep in prone position. Cough, dyspnea, etc.

8/7/12 M. I. P. 2 c. c. Subcutaneously. Slight local and systemic reaction.

8/9/12 M. I. P. 4 c. c. Subcutaneously. Slight local and systemic reaction. Some improvement noted.

8/11/12 M. I. P. 5 c. c. Subcutaneously. No reaction. Still improving.

8/15/12 M. I. P. 5 c. c. Subcutaneously. No reaction. Able to sleep prone. Symptoms about absent.

8/17/12 M. I. P. 5 c. c. Subcutaneously. No reaction. No symptoms.

8/21/12 M. I. P. 5 c. c. Subcutaneously. No reaction. No symptoms. In fine condition. Discharged cured.

Case 3. T. G., age 52, male. Att. M. D., Dr. S. F. Hogsett. History. This patient presented all the usual symptoms of hay fever. Burning discharge from nose and eyes. Eyes inflamed. Dyspnea, cough, etc.

8/2/12 M. I. P. 2 c. c. Subcutaneously. A very slight local and systemic reaction.

8/5/12 M. I. P. 4 c. c. Subcutaneously. No reaction. Some improvement noted.

8/7/12 M. I. P. 5 c. c. Subcutaneously. Slight local and systemic reaction. Symptoms about subsided.

8/9/12 M. I. P. 5 c. c. Subcutaneously. No reaction. No symptoms of hay fever.

8/12/12 M. I. P. 5 c. c. Subcutaneously. No reaction. No symptoms.

Discharged cured.

Case 4. R. M., married, age 32, male. Occupation, machinist. Presented himself in July, 1911, with usual symptoms of hay fever, burning discharge from nose, eyes inflamed, etc. On Aug. 1st, began to cough severely and constantly night and day. For past six weeks unable to sleep except at short intervals. Marked dyspnea, shortness of breath. A loss of 23 pounds in weight. Physical examination. Constant cough, no expectoration, no hemoptysis, pain over sternum, no edema, night sweats for past three weeks, marked emaciation, pale and anemic.

9/12/11 M. I. P. 2 c. c. Subcutaneously. One hour after injection, slight chill. Temperature 99.3, stiffness and weakness of limbs, rheumatic pains in joints, numbness over body, some soreness and stiffness of arm at site of injection. Following injection slept four hours on the night of the 12th, which is the first time he had done so for six weeks.

9/13/11 Some slight stiffness of joints, cough and sneezing lessened. Slept twelve hours.

9/14/11 M. I. P. 5 c. c. Subcutaneously. Five hours after injection had marked chill lasting half hour, went to bed, severe headache all night, numbness and stiffness and pain in arm and legs. Local reaction marked 18 hours after injection in arm, could not move arm on account of pain and tenderness.

9/16/11 Presented himself in fine condition. To all appearances an apparent cure.

9/17/11 M. I. P. 5 c. c. Subcutaneously. Six hours after injection had slight chill, temperature 100 half hour after chill. Severe local reaction. Hay fever symptoms still absent.

9/19/11 M. I. P. 5 c. c. Subcutaneously. No chill, no temperature, very mild

local reaction, no hay fever symptoms.

9/21/11 Discharged cured.

CASE 5. Age 33, male. Occupation, machinist. Presented himself on July 19th, 1912, with the usual symptoms of hay fever. Burning discharge from eyes and nose, dyspnea, etc. Unable to sleep except at short intervals.

7/19/12 M. I. P. 2 c. c. Subcutaneously. No reaction either local or systemic.

7/21/12 M. I. P. 5 c. c. Subcutaneously. Local reaction marked. Severe systemic reaction. Chill, rise in temperature. General feeling of bodily illness. No improvement in symptoms.

7/23/12 M. I. P. 10 c. c. Subcutaneously. Both local and systemic reaction very severe. Following this injection all symptoms of hay fever disappeared and patient would not report for further treatment.

Note. This patient was reported as case No. 4 (1911). This year the symptoms were not as severe but he reported at the beginning of his attack.

CASE 6. Male, age 47, married. Had had yearly attack of hay fever since six years of age. Presented with the usual symptoms of hay fever, burning discharge from nose, eyes inflamed and discharging, etc. No asthma.

8/15/12 M. I. P. 5 c. c. Subcutaneously. Slight local and systemic reaction.

8/18/12 M. I. P. 5 c. c. Subcutaneously. Very little local or systemic reaction.

8/22/12 M. I. P. 5 minims intravenously. Following this injection chill came on in about 30 minutes and lasted for the same length of time. A sharp rise in temperature followed. Severe headache.

8/25/12 M. I. P. 5 minims intravenously. Reaction about the same as followed last injection. No improvement noted.

8/27/12 M. I. P. 5 minims intravenously. Similar reaction. Some improvement noted.

8/29/12 M. I. P. ½ c. c. intravenously. Reaction the same.

9/2/12 M. I. P. 12 minims intravenously. Chill that followed this injection lasted 50 minutes. A very marked improvement noted in hay fever symptoms.

9/5/12 M. I. P. 1 c. c. intravenously. *Severe reaction.* Patient free from hay fever symptoms. Further treatment not deemed necessary. A constant symptom of reaction was the severe headache that followed each injection.

CASE 7. Age 50, single, female. When this patient presented she had all the usual symptoms of hay fever. Has had the usual line of treatment without benefit. Gives a history of yearly attacks of this disease.

9/3/12 M. I. P. 5 minims intravenously. *Reaction marked.* Chill lasted 40 minutes, coming on in about half hour after injection. Severe headache.

9/5/12 M. I. P. ½ c. c. intravenously. Usual reaction. Chill, rise in temperature, etc. Considerable improvement noted.

9/7/12 M. I. P. 10 minims intravenously. Usual reaction. Patient practically free from hay fever symptoms. Patient passed from my control. No further treatment.

CASE 8. Age 45, female, married. This case presented all the symptoms of a typical case of hay asthma. The past three weeks has been unable to sleep in prone position. Distress very great at all times. Marked dyspnea.

9/2/12 M. I. P. ½ c. c. intravenously. A very severe reaction followed this injection. Chill, severe, coming on in about 45 minutes. Sharp rise in temperature. Severe headache, malaise and feeling of depression.

9/4/12 M. I. P. ½ c. c. intravenously. Reaction slight. Some improvement.

9/6/12 M. I. P. ½ c. c. intravenously. Slight reaction. Patient free from symptoms of hay fever. O. K.

CASE 9. Miss M. H. Diagnosis. Bronchial asthma. History. Asthma three years' duration. Nasal operation for polypi, adenectomy, tonsillectomy, curettage, dilatation of sphincter ani, climatic changes of all descriptions without benefit. Steadily getting worse. Attacks nearly every night and sleeps in semi-prone position. Fifteen drops adrenalin chloride solution the only measure that gives relief from shortness of breath, wheezing, coughing, etc. Sputum examination negative. Family history negative.

1/2/12 M. I. P. 2 c. c. subcutaneously. No reaction.

1/3/12 M. I. P. 3 c. c. subcutaneously No reaction.
1/4/12 M. I. P. 5 c. c. subcutaneously. No reaction.
1/5/12 M. I. P. 5 c. c. subcutaneously. No reaction.
1/6/12 M. I. P. 10 c. c. subcutaneously. No reaction.
1/7/12 M. I. P. 10 c. c. subcutaneously. No reaction.
1/8/12 M. I. P. 10 c. c. subcutaneously. No reaction.
1/9/12 M. I. P. 10 c. c. subcutaneously. Slight chill, nausea and temperature elevation. Symptoms subsided following the first injection.
1/10/12 M. I. P. 10 c. c. subcutaneously. No reaction. No symptoms of asthma.
1/13/12 M. I. P. 10 c. c. subcutaneously. No reaction. No symptoms.
1/20/12 M. I. P. not given as patient reported absolutely free from all symptoms. Breathes freely and sleeps O. K. Discharged cured.

WHAT CAN BE DONE FOR THE RELIEF OF OUR ARTHRITIC PATIENTS?

BY

J. A. STOUTENBURGH, M. D.,
Washington, D. C.

When a systematic study is made of symptoms that go to make up the conditions to which the term "rheumatism" is applied, and their causes become known, then "rheumatism" will no longer be synonymous with vague pains, swellings and arthritis; nor will sufferers from rheumatism and gout be deprived of enjoying tissue forming food in the form of red meat. Many of those subject to recurrent attacks of rheumatism experience just as much suffering when on a diet of bread and milk, as they do when on a diet of beefsteak.

Myalgia is known as muscular rheumatism. But what is known as to its cause? Gonorrheal rheumatism is known as an arthritis caused by an infection from gonococci. But what kind of rheumatism is it that results from the staphylococci and similar bacterial infection?

In an article published in American Medicine, (January, 1911), it was stated in effect that rheumatism is a disease caused by deficient digestion of and autoinfection from the nitrogenous tissue forming foods known as proteids, such as gluten of flour, egg, the fibrin of the blood and the casein of milk; the form of rheumatism depending upon whether the disease is due to deficient power of cellular enzymes, putrefying food, or intestinal bacteria, or by a combination of these factors in the propagation of the specific germ of this autoinfection; and whether the infection causing the malassimilation of the proteid foods occurred during the stage of constructive assimilation, when they are transformed into a more complex form and become more energetic as tissue formers and heat producers; or in the stage of retrograde metamorphosis in the breaking up of the peptones from the proteids into urea, carbonic acid and water as end products.

The theory that the rheumatic poison arose from such causes led to the use of antiseptic agents that might kill ferments and inhibit the development of intestinal bacteria, without noticeably impairing the digestive action of the enzymes.

Irritants to the epithelial cells of the intestinal mucous membranes must impair their function and, therefore, interfere with their part in the general processes of transforming food into energy and heat. The ability of the organism to withstand the essential prolonged use of such antiseptic agents in the necessary certain con-

centration, naturally narrows them down to such substances as possess the attributes characteristic of foods, in the quality of being comparatively free from injurious action on the organism.

By the alteration of the physical nature of those substances capable of antiseptic influence, by chemical action so that the organism may tolerate that certain concentration necessary for results in treatment, much good may be accomplished. This is especially true of the active principles of the original constituents of the synthetic compound acetyl-methylene-disalicylic acid. Certain it is that relief from the disease is not obtained from the use of the separate component parts of this compound, namely, acetic acid, salicylic acid and formaldehyde; nor can a parmaceutical mixture of those component parts be administered with the same safety and freedom from gastric and cardiac distress. In substantiation of these theories, namely: the advantages of a proteid diet, and the necessity of modifying the nature of salicylic acid by chemical synthesis, I quote the statement of Professor Thomas McCrae of Johns Hopkins University in Osler's System of Modern Medicine:

"To keep the patient indoors, to cut off protein foods, to give prolonged hot baths, to administer large doses of salicylates are all injurious, as a rule."

In acetyl-methylene-disalicylic acid we have an agent that is especially destructive of the rheumatic poison, and it is so potent in the relief of rheumatism and gout as to be an efficient means in establishing a diagnosis where there is doubt as to the nature of the disease. The following case history is given as being of interest here.

Fig. 1.

Showing the well nourished body, resulting from the generous mixed diet allowed.

A dentist, at the age of 40 years, while standing at his dental chair in apparent good health, suddenly began to suffer from severe pain in his right ankle, which became rapidly swollen and forced him into bed for some days. When

resuming his professional duties his ankle was both stiff and painful. Six months afterwards his right knee became involved in the same manner as his foot. Subsequently it attacked his left knee. Recurrent attacks of swelling and pain were frequent. From July, 1905 to January, 1906 he was confined to bed. During this period there was much suffering and a general stiffening of nearly all the joints, especially of his shoulders, neck and jaws. His fingers became deformed in the characteristic manner of the disease. His knees and ankles had become so stiff that he could not bend them. In the way of treatment he used aspirin, sodium salicylate, iodide of potassium and grains three times a day. At that time he was suffering considerable pain and was much stiffened from the disease and it was with the utmost discomfort and difficulty that he could rise to his crutches. His ankles and knees had been stiff and more or less painful for over seven years. Within three weeks he could move about with much more comfort. Since that time he has continued to improve. The stiffness has disappeared from his jaws, neck and shoulders. There is now slight movement in the right knee, and sufficient mobility of elbows and fingers to enable him to again practice his profession. He is in the enjoyment of extraordinary good health and strength, and has been absolutely free from any new

Fig. 2.
Characteristic deformities of elbows.

many other products that are mentioned as being useful in combatting rheumatic conditions. He took those medicines to the full point of toleration, with no abatement in his diseased condition. In fact, during one year of this time, he was on a strictly non-nitrogenous diet, taking aspirin in large doses; at the end of which period, he was seized with a severe exacerbation of all symptoms, and suffered greatly for months, necessitating the use of morphin hypodermically to get relief from pain.

For many months during each year from 1906 to the spring of 1911, he was almost helpless and often confined to bed. In May, 1911, he began the use of acetyl-methylene-disalicylic acid, in doses of thirty lesions since May, 1911.

The effects of the disease on his elbows and hands are exhibited in the accompanying photographs. The accretions of osseous material and the permanent destruction of tissue is beyond the power of internal medication to remove and restore. The rounded out chest and arms prove the re-establishment of assimilation of tissue forming foods. There are few victims of "poor man's gout" who can show such a well nourished body after twelve years of experience with that disease.

The above case is one of arthritis deformans, a disease that has been known from the earliest history of man and de-

picted in the stone age. Sir William Osler states on page 286, 1902 edition of his Practice of Medicine:

"Arthritis deformans is an incurable disease. In many cases, after involvement of two or three joints, the progress is arrested. Too often it involves successfully all the articulations, and in ten, fifteen, or twenty years the crippling becomes general and permanent. The best that can be hoped for is a gradual arrest. It is useless to saturate the patients with iodide of potassium, salicylates, or quinine. Arsenic seems to do good as a general tonic. The improvement may be marked if large doses of it are given. Iron should be used freely, if there is anemia. Careful attention to the digestion, plenty of good food, and fresh air, are important measures. Hydrotherapy, with carefully performed massage, is best for the alleviation of pain and may possibly restrain the progress of the affection."

The knowledge obtained from the relief of the cited case, in addition to other cases reported on, placed in conjunction with the evidence of such an authority as Osler that it is useless *"to saturate the patients with salicylates,"* proves that the efficiency of acetyl-methylene-disalicylic acid is due to the alteration of the physical nature of salicylic acid, with the incorporation of the formaldehyde element into the compound.

That the amelioration in the condition of this patient was not merely one of coincidence with the time of using acetyl-methylene-disalicylic acid, in repeated powerful doses, is proven by the successful controlling of recurrent acute symptoms in the joints previously affected, and the restored mobility of joints that had become stiffened by thickening of capsular tissues, without the use of massage or of any other agent or change of treatment. The change from an ailing, depressed, physical inability, to one of extraordinary good health and strength, is additional confirmation.

The similarity of the rapidity of development of inflammatory swelling, with the erosion of the cartilage of the joint in arthritis deformans, in its resemblance to a pyemic arthritis, suggests a similarity of

Fig. 3.
Typical deformities of hands.

cause—bacterial infection. A pyemic infection leads to suppuration, and often to death. An auto-bacterial infection seldom suppurates, and few die from arthritis deformans. It is the absence of suppuration in the presence of inflammatory swelling, in association with destruction of tissues that characterizes the arthritis of "poor man's gout," and distinguishes it from the arthritis and periostitis resulting from pyemic infection.

Our ability to relieve pain, increase comfort, and apparently to restrain the progress of arthritis deformans, must not be confounded with the power to remove those permanent effects of the disease seen in the loss of cartilages from the joints, in the osseous accretions deposited in those

joints, and in the contractions of the tendons.

The pronounced cholagogue action from the use of acetyl-methylene-disalicylic acid, when taken in doses of 20 to 30 grains every one or two hours, for the rapid control of acute cases of rheumatism, rheumatic iritis, alveolar abscesses and gout—as seen in the free secretion of bile and accompanying purgation, if too severe, is readily modified by lessening the dose.

Rheumatism sometimes causes the replacement of the natural mineral acid of the stomach—muriatic—with an organic acid, in which acetyl-methylene-disalicylic acid is soluble. This abnormal condition of the stomach contents may cause some irritation. It can be corrected by an accompanying dose of five drops of muriatic acid and two grains of pepsin dissolved in a half a glass of water.

The treatment of diseases dependent upon disturbances of the proteolytic action of the intracellular enzymes of the epithelial cells—whether produced by intestinal ferments or by micro-organisms in causing putrefaction of the proteid foods—is the inhibition of the further production of those poisonous substances. That is why arsenic seems to do good if given in large doses, and not as a general tonic, as stated by Osler. Medicine can not supply the intracellular enzymes—the tools of the epithelial cells—but full doses of acetyl-methylene-disalicylic acid have frequently been known to reestablish nutritional equilibrium and stop rheumatic and gouty processes, that had been persistent and almost chronic in nature. After the elimination of the poison causing the diseased condition, and the inhibition of its further production in the economy, are established; relief from pain, improved metabolism, and a general sense of well being ensue.

PERSONAL IMPRESSIONS OF DR. FRIEDMANN'S TUBERCULOSIS TREATMENT.

BY

IRVING WILSON VOORHEES, M. D.,
New York City.

On April 17th I had an opportunity to be present at the examination of 28 cases of tuberculosis of the bones and joints which I had seen Dr. Friedmann inject three weeks previously at the Hospital for Deformities and Joint Diseases, this city. Diagnosis in these cases had been carefully made by those in authority, and they may be looked upon as verified tuberculosis. All of the cases had received a double injection, that is, the serum had been introduced into a vein (usually at the elbow, occasionally in the neck) and also into the buttocks. The age of the patients ranged from a few months to about 30 years. It is impossible to record the details of each case, but in estimating the amount of improvement made, Dr. Frauenthal, chief surgeon to the hospital, kept in mind the essential features in each case, viz.: pain, loss of motion or partial fixation, swelling, fluctuation, presence or absence of tuberculous sinus, presence or absence of symptoms or signs due to the injection itself. There were no apparent injurious effects from the treatment thus far. Although Dr. Friedmann has made a very special point of the harmlessness of his "living avirulent bacilli" not all his confrères have been willing to admit this.

SEVERAL PATIENTS IMPROVED.

There was a notable improvement in several of the cases, especially that of a girl about ten years of age suffering from tuberculosis of the right knee. She was able to bend the knee to a right angle and was walking around without any support.

All pain and most of the swelling had disappeared.

One German woman was perfectly delighted with the result attained in her child, a flaxen-haired girl of seven or eight years. This child had been practically helpless for months but her mother said that she now eats, runs and plays about like any other child. She seemed to think that there was no need for further treatment, but the doctors ordered her to bring the child again in one week.

There were several cases of children who had tuberculous glands of the neck with deep ugly scars where the discharge had been pouring out for months. These glands had largely disappeared, the discharge had ceased, and the holes or so-called sinuses had closed. This group seemed to be the most satisfactory of all.

THE ADULT CASES.

The adults were also examined. One a woman about thirty years of age, had had very severe pain and partial fixation of the left elbow for many months. Her pain had disappeared, and she was able to move the joint through an arc of about thirty degrees. There had been a slight return of pain in the glands of the left side of her neck, but this troubled her very little. She seemed greatly pleased at the progress made and was very grateful for all that had been done for her.

The other adult, a man of twenty-five, also had tuberculosis of the left elbow. He was inclined to think that very little improvement had taken place, but when questioned he admitted that he could comb his hair and button the back of his shirt to his collar, a feat which had previously been impossible. If much pain had been present he could not have used the joint so freely.

OTHERS NOT BENEFITED.

Not all of the cases had improved. In some the joint was still swollen, painful, and was held in a fixed position. Three or four of the cases showed abscesses at the site of injection into the muscles. Dr. Friedmann has said that this does not occur if an intravenous injection is given simultaneously with the intramuscular injection. In the cases mentioned this rule, for some reason did not maintain.

Out of the twenty-eight cases which returned seven or eight were so improved as to cause favorable comment on the part of the physicians present. In the other cases, however, evidence of the disease was still present, either as swelling, pain, deformity or localized abscess.

It must also be remembered that the cases have been kept in splints and supports, have been "forced fed," kept out in the open and have conformed to the usual hygienic measures applied in tuberculosis. Moreover, only one injection has been given to each of the cases so far. Therefore, the test is as yet far from complete, and one must await further data before a final opinion can be formed.

14 Central Park West.

THE ANNOTATOR.

Mental Hygiene.[1]—An editorial notes the attention which is now being given in all civilized countries to mental unsoundness, and that even in Great Britain an attempt is being made to apply eugenic principles by legislation. A bill has been introduced into Parliament providing that certain undesirable persons or classes of persons should be deprived of the capability procreating children, in the interests of the community.

[1] *New York Medical Journal*, March 8, 1913.

It is pointed out that in the recent Conference of Mental Hygiene in this country, Professor Llewellyn Barker gave the widest scope of the definition of mental unsoundness , making it inclusive of criminality, inebriety, vagrancy, pauperism and prostitution.

The problem therefore, is to find means by which the condition in question may be ended. There must be real reforms in social laws to prevent insanity, steps being taken to perpetuate conditions of good inheritance and eliminate those which are bad. Many difficulties are in the way, but education and selective mating will be essential in any event.

Checking the output of the unfit has already been put into practical operation in several of the states, but it is as yet too early to speak of the results.

The influence of environment upon mental and physical health is of course very great and it is desirable that social reforms be everywhere introduced and enforced.

Industrial conditions can and should be improved in all parts of the country. The control of syphilis, if managed vigorously, is one of the reforms which would enormously diminish the number of defectives and insane.

The community should be educated to the comprehension of the fact that social evils lead to physical and mental ills, and that the wisest and cheapest plan is to get rid of such evils.

Backward School Children.[1]—An editorial remarks that physicians have not yet interested themselves as a body, as they should in the management of children of slow or defective development, while the pedagogues are advising that the slow should be forced to keep up with the fast, forgetting that what is best for one may not be good for the next.

Those among the backward children who are imbeciles should be placed in special schools after having been examined by an expert alienist.

The medical profession is beginning to do good work in detecting physical defects which interfere with a child's perceptions.

This is particularly a result of the examination of school children physicians frequently finding serious conditions which were not suspected by the parents.

It is now generally accepted that the eyes of every child should be examined by an oculist and their defects corrected, and the same remark will apply to the ears, nose, throat and teeth.

Another important matter consists in the supplying of nutritious luncheons for undefed school children. Tho results of this treatment have been marvelous, children who were backward merely from starvation, starting at once to grow and develop physically and mentally. The probable result will be the establishment of lunch rooms as a part of the equipment of every school.

In Europe many out-door schools for the tuberculous have been established, education and medical treatment thus going on simultaneously.

When feeble children, not yet tuberculous, were admitted to such schools they have not only become robust physically, but have caused astonishment by their mental progress. These results have demonstrated that the medical profession has not yet been able to cause school authorities to properly ventilate schoolrooms. The writer advises that all school children be compelled to stay in the open air during school hours and, if possible, during sleeping hours.

The problem of backwardness is a medical and not a pedagogical one and should be solved by the removal of its causes.

Schools for the Feeble-minded the State's Best Insurance Policy.[1]—I. M. Hardy affirms that institutions for the feeble-minded stand for the individualization of teaching and for industrial and service training which has been scientifically evolved for the development of mental defectives.

The system has been in operation in Europe for a century but in this country it is yet in its infancy.

At the present moment state care and segregation of mental defectives is in the ascendancy, and it will ultimately result

[1] *Interstate Medical Journal*, March, 1913.

[1] *Medical Review*, February, 1913.

in doing away with the necessity for dependant, custodial, or penal institutions.

Religion and society are beginning to realize the danger to the community from mental defectives not only through their own conduct but through the propagation of offspring who will be even less responsible than their parents for their actions. Hence the necessity of early segregation which though expensive is less expensive than making no effort at all in the matter. It is thought that the carrying out of the method of segregation by the various states would greatly lessen the evils of prostitution. From every point of view the institution for feeble-minded is the best insurance in which the state can invest, for its aim is to raise the lowermost stratum of the social structure.

The writer of this paper might well have referred to the efforts of the general government at excluding the feeble-minded among immigrants, concerning which the laws can hardly be too rigid.

We have suffered too long as the dumping ground of Europe for such helpless and expensive burdens.

Nor must we forget that by sterilizing these unfortunates, as is now done in some of the states, we can at least be doing a great service to the generation which is to follow us.

A Bureau of Social Hygiene.[1]—An editor speaks of this bureau as a permanent organization, with good financial backing, for the investigation of the question of prostitution and thinks there is evidence of wisdom and caution in its mode of attack since it refrains from intemperate statements as to the causes of the evil and its methods of cure.

The study is a complex one and involves its relations to the alcohol traffic, especially in saloons and illegal hotels, its relations to overworked and underpaid women in the industries, to bad tenement houses, to want of recreation facilities, to unhappy marriage, to ignorance of hygiene and to the iniquities of the white slave traffic.

There must also be investigation as to the value of regulation which does not regulate and of segregation which does not segregate. As a commercial problem the prostitute does not constitute the entire social evil problem. The demand is created by men and they are responsible for the unfortunates who furnish the supply. The organization of this business, the exploitation of those who are sacrificed to the selfishness of men is a commercial pursuit on the part of soulless men.

The work of this bureau is so comprehensive in its scope that it will enable us to ascertain from the public health standpoint the advantage of health certificates as an essential to a marriage license, of sterilization, and of the compulsory notification of venereal diseases.

Of course this research must be approached in a sane calm scientific attitude, in order to view the entire situation fearlessly, weigh the evidence impartially, and suggest remedial measures which may in time, perhaps, eradicate this economic, social moral, and sanitary scourge.

[1] *Medical Review of Reviews*, March, 1913.

TREATMENT.

The Treatment of Influenza.[1]—There are few diseases of serious import which have been so inadequately recognized as such by the laity, as influenza. The number of cases of otitis, mastoiditis, chronic myocarditis, as well as the pulmonary complications and sequelae which have followed mild, undiagnosed and neglected cases of the disease, are appalling. It is therefore incumbent upon the general practitioner to enlighten his uninformed patients and to impress upon them the fact that the mildest form of the disease may be followed by the same complications and sequelae as those that follow the severest type of the disease.

Every patient suffering from influenza should be put to bed and kept there regardless of the mildness of his symptoms. He should be isolated from the rest of the family, especially the old and the very young in whom complications so often occur during the course of the disease.

The patient's bowels should be freely opened with a mild saline cathartic even though diarrhea has previously existed. The remainder of the treatment is symptomatic rather than specific, for no specific treatment has as yet been discovered for the disease.

Of the special symptoms most frequently complained of by the patient suffering from influenza, may be mentioned the excruciating pains which occur in almost any bone or muscle of the body; the severe frontal and orbital headaches; the extreme prostration; the drench-

[1] *Med. Review of Reviews*, Jan., 1913.

ing sweats; and the bronchitic cough with its tenacious sputum.

For the first day or two of the disease it would seem that no relief of the discomfort is obtained by the patient without the administration of a salicylic preparation or a coal tar product. The judicious use of both types of drugs in this infection is imperative as their depressant action is often observed in influenza. It is well not to continue their use longer than a day or two or until the patient can comfortably bear his ordeal without them. For this purpose, Salicin in doses of x-xv grains given three times a day either alone, or in combination with ammonium acetate, and an additional dose with ten grains of Dover's powder at night, has been highly praised for its efficacy by Yeo and other English therapeutists. Salicylate of soda and salicylic acid often act well, but aspirin is better avoided on account of the profuse sweating which it often occasions, much to the discomfort of the patient. An occasional dose of five grains of antipyrin for the severe headache will often suffice, but codeine and the ice cap are just as serviceable.

The drenching sweats are most characteristic of the disease and are best treated with frequent sponging with vinegar and water (1-3). The prostration which is always marked, is to be combatted with frequent feeding, though this is usually possible only after the first few days of the disease. The food should be nourishing; milk, cereals, custards, and plenty of lemonade with the white of eggs. Water should be freely given to assist in eliminating the toxins. A rapid and flagging pulse calls for the early administration of whiskey or brandy, which should be given in generous doses and should not be withheld too long.

Of all the symptoms associated with influenza, the bronchitic cough with its tenacious mucus, is the most resistant to treatment. It not only exhausts the patient, but also the wits of the physician. When once the sputum becomes liquified, the patient suffers but little discomfort from the cough. In order to liquify the sputum, the patient should drink freely of hot milk to which as been added some Ems salt or some alkaline aperient, as vichy. The pain occasioned by the racking cough can often be loosened by properly strapping the chest. Internally, the following mixture is advised for the cough:

℞ Morphinae hydrochloridi .. ..gr. ¾
Apomorphinae hydrochloridi ..gr. i
Acidi hydrochlorici dilut..... ℥ss.
Syrupi ..... ℥ii.
Aquae q. s ad ..... ℥ii.

M. et sig.: One or two teaspoonfuls for a dose.

After expectoration is freely established and the sputum is no more tenacious the following prescription is of service:

℞ Camphor 3. 0
Codeinae .....
Pulv. rad. ipecac, aa 0. 4

M. et divide in pilulae to 30. Sig.: One pill every 2, 3 or 4 hours.

As has been previously stated, there is no specific for influenza, Serums have been produced against the infection, but with little or no success. In the severer types of the disease, and especially in the lethal forms associated with influenzal septicema, autogenous vaccines should be given a trial when they can be obtained.

The nearest approach to a specific treatment in the milder and the moderately severe types of the disease, according to Yeo, is the administration of quinine after two or three days of salicin treatment. This author is of the opinion that we should see far less cardiac asthenia and other sequelae if this drug were given regularly in the course of the disease. Yeo prefers giving three grains of quinine sulphate with fifteen grains of citric acid every three hours; this is added to an ounce mixture containing fifteen grains of ammonium carbonate and five grains of potassium bicarbonate. More satisfactory results are often obtained by giving one grain each of quinine hydrobromate and phenacetin every hour throughout the day.

During the course of an attack of influenza, close watch should be kept for a complicating otitis media; the ear drums should be frequently inspected. Intracranial complications can best be avoided by keeping the nose and throat clean by means of frequent douching with a physiological saline or mild antiseptic solution.

The sputum and nasal discharges of the patient should be carefully collected and burned. The room should be thoroughly disinfected after the patient is well.

Convalescence from influenza is notoriously slow. Proper tonic treatment should be instituted early after the acute illness has subsided. A close watch should be kept on the heart. A slow irregular pulse or a rapid irregular pulse which is often observed during the convalescence calls for liberal doses of strychine, to which small doses of quinine and arsenic may be added. The patient must be warned not to overexert himself for weeks after he is apparently well. Overfeeding with plenty of rest and fresh air should also be advised during convalescence.

Treatment of Infantile Convulsions.[1]—According to Styles, the rational treatment of infantile convulsions presupposes a knowledge of the etiological and pathological factors concerned in its production. Briefly considered, convulsions are either central or peripheral in origin; typical of central type are the acute exanthemata, cerebral abscess, etc., while exemplifying peripheral factors, are gastrointestinal disturbances, foreign body in nose or ear, etc.

Treatment will be discussed under two headings, attack and after treatment.

---

[1]W. A. L. Styles, Montreal, P. Q. *New York Med. Jour.*, Jan. 11, 1913.

Attacks: Immediately immerse child up to neck in a warm (100° to 105° F.) mustard bath for five to ten minutes, with ice cap or cold compress to head, followed up by emptying lower bowel with a glycerin enema, given at 70° F. if high temperature is present; add, by mouth, a full dose of calomel or castor oil. The warm bath is contraindicated in syncope or advanced pulmonary disease. The foregoing treatment will answer admirably in most mild cases.

Should convulsions recur, introduce per rectum one ounce of warm saline, containing chloral hydrate and sodium bromide; to an infant of three months, give two and one half grains of chloral, and three to five of bromide, while at twelve months three to five grains of chloral and five to ten of bromide are given; this to be repeated at hourly intervals for two or three doses. Ethyl carbamate one and one half grain, four times daily, at six months, often succeds when the chloral bromide combination fails. Relief may only come when antipyrine (gr. ss. at six months) is given, with sodium bromide, four times daily. For the rapid control of convulsions, we have two dependable remedies in chloroform and morphine. Chloroform inhalation invariably affords immediate relief, though it may tend to depress a heart already embarrassed by toxemia, in which case ether may be substituted.

Should convulsions continue after withdrawal of chloroform, or despite foregoing treatment, morphine sulphate is to be resorted to hypodermically, gr. 1/48 to 1/24, the former amount for child of six months, the latter when twelve months old; may be repeated half hourly for two or three doses, as necessary.

After treatment is prophylactic and curative in character. After subsidence of the convulsion, we concern ourselves with the etiology of the case; peripheral factors are removed, and cerebral or circulatory disturbances, acute infections, etc., are treated in the usual manner.

Absolute rest in bed, with quiet surroundings, along with a light dietary, daily bowel elimination, and a three day chloral bromide, or antripyrine bromide, treatment to ward off recurrence of seizures.

Hyperpyrexia is to be treated along the usual hydrotherapeutic lines, being a prolific factor in inciting convulsions.

Possible secondary attacks are best guarded against by general tonic treatment—nutritious, digestible food and fresh outdoor air.

GENERAL TOPICS.

Uses of Oil of Thyme.[1]—Oil of thyme is an old remedy and one that is quite dependable for a few peculiar indications. Its therapeutic worth is attested by the fact that it is now the main constituent of two or three proprietaries that are being exploited. The proprietary people are not slow in finding out the good things and incorporating them into the remedies they present to the profession.

Oil of thyme is a volatile oil distilled from *thymus vulgaris*, a shrub that is indigenous in France but cultivated sometimes in American gardens. The oil is a thin, pale yellow liquid having a strong odor of thyme and a warm, pungent taste. A cooling taste is imparted to the mouth after a little while.

This oil is valuable in dry bronchitis and all dry catarrhal conditions of the air passages. Dry, hacking coughs and persistent coughs, among them pertussis, are benefited by this remedy.

Thymol is the importnt element in oil of thyme, and is a stearoptene occurring in colorless crystals which are feebly soluble in water but more so in alcohol. Thymol in large doses (10 to 30 grains) is a powerful anthelmintic and is considered a specific against the now popular "hookworm." In smaller doses (1 to 3 grains) it is used in gastric fermentation and mild stomachic disorders.

Thymol solution makes a pleasant mouth wash, it being antiseptic and corrective. It is an excellent wash or spray for wounds and ulcers and may be used in a strength of 1 to 1000. It is soluble in 1 part to 900 of boiling water. It is serviceable in removing unpleasant odors of many kinds and is said to remove the odor of tobacco from the breath.

[1] *Med. Summary*, Nov 1. 1912.

SOCIETY PROCEEDINGS.

THE EASTERN MEDICAL SOCIETY OF THE CITY OF NEW YORK.

The regular stated meeting was held April 11th, 1913, the President, Dr. Joseph Barsky in the chair.

EXECUTIVE SESSION.

The Executive Session was devoted to routine business and the election of members.

SCIENTIFIC SESSION.

A. *Presentation of Cases.*
   1. *Crural Neuralgia, due to Tumor of Femur*, Dr. David Sheitlis.
   2. (a) *Cretinism.*
      (b) *Acromegaly.*
      Dr. M. Neustaedter.

B. *Papers.*
   1. *Etiology and Pathology of Eclampsia*, Dr. Robert T. Frank.
   2. *Preliminary Report of the Treatment of the Toxemias of Pregnancy*, Dr. A. J. Rongy.
   3. *Diagnosis and Treatment of Eclampsia*, Dr. George W. Kosmak.

The discussion was of unusual interest and was by Drs. James C. Edgar, Ross McPherson, Harold C. Bailey, S. J. Druskin and Abr. M. Hilkowich.

The usual collation followed immediately upon adjournment of the Scientific Session.

269

American Medicine

H. EDWIN LEWIS, M. D., *Managing Editor.*
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.
Copyrighted by the American Medical Publishing Co., 1913.

Complete Series, Vol. XIX, No. 5.
New Series, Vol. VIII, No. 5.

MAY, 1913.

$1.00 YEARLY in advance.

The therapeutic conquest of smallpox seems to have been attained, according to the London news we publish in another column (page 319). It has long been known that the smallpox germ itself does not do much systemic damage, but the patient is really killed by the skin suppurations which occur after the system has succeeded in developing an immunity against the variola, and now it appears that if we give an artificial immunity against the pus organisms by means of vaccines, the patient is saved. All great discoveries are just as simple as this and yet we cannot help asking why did not some of our specialists think of it long ago, try it out and if successful, force everyone else to use it to end all deaths by smallpox even in those foolish people who refused to be immunized by Jennerian vaccine? Of course these illogical folks have the same objection to anti-pus vaccines that they have to the Jennerian and might refuse to have the former administered if they do get smallpox, though it is remarkable how drowning men grasp at straws they flouted before they slipped into danger. So it is not at all sure that we can stop all smallpox deaths. At any rate, if the news given by Sir A. E. Wright is confirmed, it is one of the greatest therapeutic advances in the history of medicine. The poisons of the smallpox germ seem to reduce the skin's resistance to invasion by pus organisms, and a very respectable percentage of physicians believe that this effect is magnified by the injury which light rays invariably do to skins insufficiently protected by pigment. Not a few are convinced with the late Dr. Finsen that if we exclude the short rays of light soon enough the smallpox poison has not sufficient power of itself to destroy the anti-pus immunity we naturally possess. Surely all short rays are irritating to the skin and all other tissues they can reach, and more surely still, the lighter the country the worse are the pus infections following smallpox, and in the tropics the cases are dreadful. Denmark has so much cloudiness and so little light that it was possible to exclude the short rays from the patient and thus obtain excellent results in treating smallpox. The English in their dark land undoubtedly got some results from red curtains or that method would not have such a hold on the popular mind; but in very light countries such methods fail, probably because they do not exclude enough of the harmful short rays. The pus vaccines are then preeminently useful in lands of sunshine, but their effect in producing an immunity which cannot be beaten down by smallpox alone, would undoubtedly be lessened or perhaps nullified by exposure to excessive light. We therefore beg those who in-

tend to try out the new treatment to be very careful to exclude sunlight from the start. The room lights should be greatly subdued and contain no short rays whatever. A red or yellow light is the only one permissible, preferably the red as it has the least actinic effect though it might be more irritating to the retina. This is particularly important in the tropics where the light can surely be blamed for much of the severity of smallpox in those of light complexion.

The production of Jennerian vaccine free of pus germs is now a possibility. Hitherto we have been as clean as possible and depended upon glycerine or some other germicide to kill the organisms we could not exclude. Unfortunately these germicides will in time kill the vaccinia organisms also and though it is possible to prevent their multiplication by cold storage, it is difficult to transport them without warming them up. It is evident then, that a vaccine absolutely free of pus organisms is of vast advantage, for it will retain its vitality much longer and reduce the number of failures due to death of the vaccine. The new treatment, if proved to be even more successful than the first reports indicate, will not obviate the necessity for vaccination for a long time if ever—or at least until we learn how to avoid infection. The real nature of a case also may not be recognized until too late to do much good by pus-vaccines, though theoretically they should be successful at any stage. It may not be curable invariably, and therefore an artificial immunity is essential, and an absolutely safe vaccine must be used. If it is shown that calves first immunized to pus organisms do produce a far safer Jennerian vaccine, the proceeding should be made obligatory—not by law but by purchasers, particularly health authorities who buy and distribute vaccines. There are very rare instances of accidents in Jennerian vaccination and probably these will always occur no matter how careful we are, so it would be desirable to obviate the necessity of a preliminary immunization against pus. There is no doubt that in the far distant future we will eliminate smallpox from the face of the earth, and that it will never arise *de novo* again from some non-pathogenic organism, but the time will not arrive until a generation or two after we have such complete control of the tropics, where the disease is now propagated, that we can vaccinate every child shortly after it is born. Then we can keep infection from the anti-vaccinationists who are largely responsible for the continued existence of the disease in civilized countries. We have long given up hope of attaining universal vaccination at home and this new possibility of curing smallpox makes us more hopeless still, as there are thousands who will decline to run the negligible risks of vaccination and prefer the greater risk of being cured in the rare chance of contracting smallpox. So we must turn our attention first to securing as complete a world immunity as possible. To do this we will need more vaccine than ever, and the necessity for a lymph free of pus germs is of increasing importance.

Spurious vaccinations must now be studied more carefully and we beg indulgence for again reverting to this hoary subject. The news that smallpox uncomplicated by pus infection is really a mild disease, directs attention to the fact that a proper Jennerian vaccination is also an

exceedingly mild infection devoid of signs of active inflammation. We must repeat over and over again that laymen and not a few physicians erroneously consider the coccus inflammation as part of the process and that the worse the inflammation the better the protection. There is plenty of evidence that the facts are the opposite, and that vaccinia may be interfered with or even suppressed by staphylococcic and streptococcic invasion. This fully accounts for the number of cases of smallpox in vaccinated persons presenting hard thick cicatrices indicative of tissue destruction. It also accounts for the large number of cases of alleged "successful" re-vaccinations in persons already protected by a proper infantile vaccination. As a dead lymph may give a skin reaction, it is also evident that many of these cases are incorrectly reported as successful re-vaccinations. As a matter of fact a successful re-vaccination is exceedingly difficult to produce in persons who have been properly protected, and it is not nearly so common as the profession generally believes. We must put an end to this false idea at once, for we hear that a scoundrel of a druggist has been in the habit of adding croton oil to his vaccine with the deliberate purpose of playing upon our error. His vaccine always caused a skin reaction and gained a great reputation for excellent quality and being always successful, though it may have been as inert as sawdust. The users were lulled into a sense of security though they were wholly unprotected. There is no question that cases of smallpox occurring in unprotected persons, who believed that a sore or inflamed arm was a vaccination, have given rise to much of the opposition to this operation. We ourselves were largely to blame, and the worst culprits among us were those medical schools which persistently neglected to teach the students what a successful vaccination really was. Comparatively few graduates from some colleges—a few years ago at least—had the slightest idea of vaccinia as a definite self-limited disease. We hope for a reformation without the necessity of calling in a layman to tell us how bad we really are. In the light of the new facts we must go over the whole subject anew to see if we have been harboring any other errors. For instance we have been teaching that if a person is partly immune, a potent vaccine will begin to "take" but will be aborted later by the antibodies still present. These have been called successful vaccinations, though they may have been nothing more than the skin reactions of dead vaccines on persons already immune, or perhaps the action of croton oil. We have a lot to learn yet, so let us get at it. As for Sir Almoth E. Wright, the world will rise up and call him blessed.

The standardization of disinfectants has been looming large for some time as one of the most important questions confronting sanitary workers the world over. With extension of the practice of disinfection and its general acceptance as one of the main details in the struggle with communicable diseases, there was a prompt multiplication of agents for which all manner of germicidal efficiency was claimed. Practical investigation and experience soon showed, however, that many of these claims were open to grave doubt, to say the least. Immediately the dangers presented by the widespread use of disinfectants possessing uncertain, variable or sadly deficient disinfecting powers produced deep concern in the minds of many con-

scientious sanitarians, and it was generally felt that sooner or later vigorous steps would have to be taken to evolve some standard by which all disinfectants could be measured. A great deal of thought had been devoted to the problem, but with little or no practical results, until about ten years ago, when the Rideal-Walker test was brought forward. The announcement of this test met with a most cordial reception from scientists generally, for it was readily seen that its general use and adoption not only placed the use of disinfectants on a definite scientific basis, but meant the practical solution of more than one perplexing problem. No longer need uncertainty attend the application of the commonly employed disinfectants, for with an expenditure of comparatively little time or effort the relative bactericidal power of any antiseptic could at last be readily and accurately determined. Thus it became possible not only to ascertain at once the practical efficiency of different germicides, but through the establishment of a definite standard, to estimate the relative costs of the various disinfecting agents, and thereby place the whole matter on a comprehensive economic basis, a consummation obviously of infinite importance to health officers, boards of health and all public or private officials charged with the purchase of sanitary supplies. With such clearly defined benefits immediately accruing from the introduction of the Rideal-Walker test to the scientific world, it was quite natural that it received the instant recognition it did, and was so widely accepted and endorsed as a simple, accurate and thoroughly reliable method of standardizing disinfectants.

Appreciation of the foregoing and knowledge of the scientific recognition which the great majority of the authorities in English speaking countries have accorded the Rideal-Walker test, make the communication from Mr. J. T. Ainslie Walker appearing on page 318 of this issue surprising indeed. For some time vague rumors have been current that a very determined effort was on foot in this country—at Washington particularly—to promote a certain other test for standardizing disinfectants—and incidentally further the use of a well known antiseptic—by attacking and discrediting the Rideal-Walker test. How true these rumors were, we have had no way of learning and little or no attention would have been given them, but for certain communications from the pen of Mr. Ainslie Walker which we have noted from time to time in some of our respected contemporaries. While these were evidently stimulated by criticisms of the Rideal-Walker test, Mr. Walker's replies were so clear cut and conclusive and seemed to dispose so logically and cogently of the contentions of his critics that we concluded the matter was ended.

Mr. Walker's communication on page 318 indicates otherwise, however, and to our deep regret—which we feel certain will also be shared by all fairminded persons—we find that a special Committee of the Council on Pharmacy and Chemistry of the A. M. A. in presenting a report on "the standardization of disinfectants" have seen fit to repeat "five objectionable features of the Rideal-Walker test"—almost verbatim as they appear in a former communication by a member of the Committee—and this in spite of the fact that Mr. Walker has satisfactorily answered every one of these so-called objections and shown their fallacies beyond all possible controversy!

For the Council of Pharmacy and Chemistry of the American Medical As-

sociation, entitled as they are to special respect—from their connection and the ostensibly unbiased nature of their investigations—to reproduce "objections" that have been proven incorrect and based on false premises, indicates either a woeful lack of knowledge of the subject they are discussing—or very bad faith.

It is especially to be regretted, moreover, that a report so manifestly unfair and wholly incorrect should have been promulgated at this particular time when the Joint Committee of the International Medical Congress has the question of standardization of disinfectants under active consideration. Any report from an accredited committee of the American Medical Association is bound to receive extra attention. Consequently, this report of the Council on Pharmacy and Chemistry is extremely liable to lead to confusion and the creation of issues which are unwarranted, unfair and very apt to handicap earnest scientific work.

Another reason for regretting the publication of this report of the Council is the surprising support given to the Hygienic Laboratory test, a method which not only does Mr. Walker in his letter show to be open to grave criticism, but which many other workers have proven wholly unreliable. It is a well known fact that numerous efforts to pass state laws establishing the standardization of disinfectants have been defeated, because the Hygienic Laboratory test was specified, and the legislators were unwilling to adopt a method which had been shown to them to be so lacking in accuracy and uniformity. It is a shame that a movement that means so much in promoting the welfare of the people, in protecting them against uncertain and inefficient disinfectants, and finally, in saving them needless expense, should be handicapped by introducing a test such as the Hygienic Laboratory test, that, at the present time at least, has so much to condemn it.

From the report of the Council on Pharmacy and Chemistry one would infer, however, that the Hygienic Laboratory test was not only the acme of accuracy and precision but that it had received conclusive endorsement by Federal authority! If the balance of the Council's report is as misleading and open to misinterpretation as this portion, we fear that it will call for considerable explanation on the part of somebody, when the facts in the situation are ultimately brought forth.

As a matter of fact, just as Mr. Walker points out, the only Federal authority calling for the use of the Hygienic Laboratory test is the General Supply Committee! But the department actually charged with the administration of the act controlling the manufacture and sale of disinfectants—the Insecticide Board of the Agricultural Department—has adopted the Rideal-Walker test! This becomes doubly interesting when one considers the attack of the Council on the Rideal-Walker test and notes the way in which the Hygienic Laboratory method is championed.

Such a spirit of unfairness and prejudice is incompatible, not alone with scientific research, but also with the ordinary instincts of honor and fair play.

We have no personal interests to serve in discussing this report of the Council of Pharmacy and Chemistry. American Medicine was one of the first scientific publications in America to draw attention to the question of standardizing disinfectants. The subject has long been a

particularly live one to us, and as a consequence, we have followed the movement with especial care since our original editorial. Very naturally the work of Rideal and Walker has appealed to us, and it has been a matter of deep satisfaction that we have been able during the past two years to present to our readers several scholarly articles by Mr. Walker, one of the authors of the Rideal-Walker test. Association with Mr. Walker, who has been in this country for some time, has filled us with genuine admiration for his qualifications as a true English gentleman—no less than for his scientific attainments which have made him known throughout the scientific world. Realizing his clean, scientific motives and appreciating his earnest efforts to aid in pushing forward this movement for the standardization of disinfectants, it has pained us deeply to note the discourtesy and unkindness that have been directed against him from certain quarters. When the trend of affairs brings a man to our shores who not only has the standing of Mr. Walker, but who has accomplished so much for the world at large, it would seem incumbent upon us to greet him with every courtesy and the kindliest consideration. To take any different course and subject his work to vicious attack, depreciating it and distorting it in the most unfair and unprofessional manner, is indeed a sad reflection on our vaunted American spirit of justice and fair play. We are particularly humiliated therefore, to learn of the astounding treatment that Mr. Walker has received from sources from which he had most right to anticipate something vastly different. The situation is not a pleasant one to contemplate, for it suggests all too plainly, reasons sordid and unsavory. Right always prevails, however, and we feel confident as the true facts come to light, Mr. Walker will find that the unpleasant experiences to which he has been subjected are simply the work of a few, who instead of representing the great body of sanitary scientists in America, represent no one but themselves and their own selfish purposes.

The Difficulties in Prescribing Diet. Since modern dietary investigations have resulted in the scientific classification of foods into proteids, carbohydrates, hydrocarbons, and mineral matters, and since we have the calorie to measure with, one might imagine that diet could be prescribed with mathematical certitude. Is the patient too fat? Reduce the fat, starch and sugar. Is he under weight? Increase the protein intake at the expense of the other principles. Nay, we had hoped to control gout, diabetes, too high blood pressure, and other conditions with a simple table of foods allowed and forbidden. How unsatisfactorily these *a priori* principles work out, however, is only too familiar to the practitioner.

Once upon a time the English prize fighter was subjected to a severe physicking and a subsequent unvarying diet of almost pure protein, beef mainly. That he was eventually able to stand punishment at all, was due probably to the elimination of so poisonous a diet by the care which was taken of his skin and other emunctories, also to his occasional rebellious "breaking of training," when he went on a sort of debauch of potatoes and bread. Now, taught by America, the ring champions eat pretty much what they please, once the superfluous fat has been removed from an overindulged body. The medical profession to-day is also kinder to its patients. The indications seem

to be plain in gout, for example, where the protein is largely wasted as uric acid, but we find Osler stating that quantity is more important than quality in arranging the gouty dietary. And so it is with other conditions, even obesity; it is necessary to cut down the entire intake, yet to maintain health the diet must preserve a due balance, or a severe indigestion will put a stop to the experiment. Even in diabetes we are forced to allow sugar and starch, with caution obviously. Often where we imagine these principles to have been entirely withdrawn, the patient has been getting a life-saving quantity from the use of some so-called diabetic flour which was not as free from starch as it purported to be.

Not long ago before a highly respected medical society a prominent dietitian of this city was obliged to deliver a most elementary lecture on the question of food values and to lay especial emphasis on such a fundamental point as the nature of a calorie, a point which experience had taught him was quite misunderstood by physicians who were, nevertheless, voicing their dietary opinions with great freedom in the medical and lay press. He might have gone further than he did and informed his audience that soap, for instance, is rich in calories—which is perfectly true—although it is not given to patients even in the direst need of caloric supply. Ignorance of such fundamental matters is inexcusable in view of the importance of the matter and of the existence of several admirably written text-books. What the text-book will not supply, however, is knowledge of the extraordinary personal idiosyncrasies that the practitioner will encounter when he begins the systematic prescription of diet. The question is full of surprises, even to the experienced dietitian, and study will convince the physician that there is still much to be learned concerning the mutual support afforded by the elements of the mixed diet of civilization. Research along these lines conducts him into the most recondite sections of physiological chemistry.

Importance of Dental Pathology. Some fifteen years ago we asked a pathologist of national reputation why he did not devote some attention to the pathology of the teeth. His reply, redolent of a singular snobbery and at the same time of unconscious humor, was to the effect that dentists should look after their own pathology. Probably no clinical student, no matter what prominence he had achieved, would make so short sighted an answer in this thirteenth year of the twentieth century. We know now that a gastroenterologist who failed to note the condition of the teeth in a given case might go far astray in his diagnosis and treatment. It is significant that a second edition of Wallace's interesting monograph[1] was quickly called for, because it is fair to say that the British practitioner accepts new ideas even less easily than we do. Dr. Wallace has proved beyond a doubt that there is no basis for a belief in hereditary predisposition to caries, and that, quite apart from efficient brushing, etc., the integrity of the teeth depends largely upon the nature of the diet, especially in childhood. We have not the space to discuss adequately Dr. Wallace's thesis, but we do him no injustice in citing two tables of meals, one of which, he says emphatically, will conserve the teeth of the child lucky enough to have it regularly sup-

[1] J. Sim Wallace: The Prevention of Dental Caries. London, Office of the *Dental Record*, 1912.

plied, while the other, and unfortunately more common form will assuredly lead to caries. The scientific list is as follows: Breakfast, fish, bacon, toast and butter, coffee and tea; luncheon, meat or poultry, potatoes, salad, baked bread, pudding, fresh fruit, water; supper, rusks, toast, or rolls and butter, chicken or fish, an apple, tea or coffee. It will be seen that this diet stimulates mastication and the last thing taken leaves the mouth clean or at least free from carbohydrates which are liable to cake around the roots of the teeth and so form the soil for caries. This is what occurs from the unscientific diet which is typified by the following menu: Breakfast, oatmeal porridge and milk, bread and jam, with a supplementary breakfast, perhaps later, of a glass of milk and a sweet biscuit; luncheon, mashed potatoes and gravy, or minced meat, milk and pudding; supper, bread soaked in milk, or bread and jam cocoa and cake, and a supplementary supper on going to bed of a glass of milk and a biscuit, or "just a tiny piece of chocolate." Such a diet leaves the mouth sticky with fermentable carbohydrates, makes cleansing practically impossible, and leads to virulent crops of acid-forming microorganisms which have had their development encouraged by the previous meal.

Dr. Wallace gives second place to all methods of cleaning the teeth by the use of the brush and mouthwashes as prophylactic of caries and thinks one good artificial cleansing in the twenty-four hours is enough. He does not think much of antiseptics nor of any tooth powder save precipitated chalk and warns especially against gritty powders. If it was necessary to condense Dr. Wallace's advice into a slogan, this would be "Away with pap foods!"

The question of diet, we observe, has with good reason come to the fore within recent years; the nature of the diet is of far reaching importance to every portion of the alimentary tract, to say nothing of its obvious results on the general health. The instinct which demands roasted and broiled meats instead of rechauffés and stews, and crusty bread, toast, and rusks instead of soft rolls and hot bread is a healthy one and a habit of eating the articles which demand prolonged mastication should be inculcated as soon as the baby is weaned. There is no necessity for pap, but positive harm results from giving it after the eruption of the teeth. As the physician is quite likely not to be consulted in this matter by the parents or nurse, he should make it his duty to inquire into the nature of the weaned infant's diet and to insist that it contain the proper jaw-exercising foods. Now that 1,000 point babies are becoming the fashion he will have less difficulty than formerly in urging parents to give what is right. Probably thumb sucking and the supposed necessity or a "pacifier" will be found to disappear on the institution of the proper diet; the jaws will develop symmetrically, the denture will tend to become and remain perfect, constipation and diarrhea will alike be abolished, less dosing will become the rule, and the obstinate parental insomnia ought to be cured. As to the villainous "pacifier," nothing replaces it better than a crust of toast, which, owing to its stimulation of the mouth, secures proper conversion of its starch and this, in turn, leads to a lessened demand for candy.

Remote Effects of Diet. The importance of the study of diet, the surprises it has for the student, its effect on the teeth, etc.,

which we have just discussed, received emphasis at a recent meeting of the Royal Society of Medicine in London, during which there was apparently a symposium on intestinal toxemia. It has long been suspected that food had an important effect on skin lesions, such as chronic eczema, but Lawford, the well known ophthalmist, drew attention to its little known manifestations in the eye, phenomena which were doubted by some, but which, according to Lawford, were now recognized as certain. Chronic iridocyclitis was without doubt due to prolonged intestinal toxemia and exudative choroiditis was very likely to accompany oral sepsis, now well known to be a cause of toxemia. Several types of scleritis were also related to intestinal dyspepsia, also retrobulbar neuritis, while in severe intestinal poisoning, such as occurred in dysentery, retinal hemorrhage was by no means unknown. As to skin diseases it was brought out at the meeting referred to, that many inflammatory lesions followed intestinal disorder, severe enough to lead to permanent scarring, atrophy and ulceration as well as pigmentation. A specialist from the well known English watering place, Harrogate, drew attention to the occurrence of lesions of mucous membranes following intestinal toxemia, and our readers must be familiar with the chronic bronchitis in middle age which is notably relieved by purgation, followed by low diet, and which sometimes alternates in a perplexing manner with a resistant eczema, itself probably due to indigestion, as alluded to above. We have had hopes of Metchnikoff's ideas as to treatment of intestinal toxemia, but it seems to be more scientific to secure prophylaxis by a carefully chosen bill of fare and moderation in the use of it. A very large number of the wealthy patients who visit the European spas and our American mineral springs are sufferers from nothing more serious than the effects of overeating or unwise eating and we can treat these subjects at home with perfect results once we gain their confidence. We have all the therapeutic arms at hand save the change of scene, and judicious inquiry into the patient's fads and fancies ought to enable us to find him some avocation that will produce the same effect as change of environment by diverting his attention from business. We should exercise our ingenuity in teaching American business men to play with the same interest they give to work; if this can be accomplished the necessary change in diet may be made without too great a struggle. The rewards of even a week's abstinence from bulky food are very great and if we can enforce or coax such a sacrifice, we soon have a grateful patient and thenceforward a docile one.

A Novel Theory of Juvenile Crime. Dr. J. George Adami, in his address on Education before the Medical Society of the State of New York at Rochester on April 29th, had much to say of the deplorable results of committing young men to the care of women teachers. To the present exaltation of feminine and lowering of masculine influence in the home and in the school he ascribes the increase in juvenile crime, as well as the increase in domestic misery. This startling statement, as a matter of fact, shows deep penetration and logical deduction. Women are not able to enforce obedience in young men and with them cajolery takes the place of discipline. We have only to think of the result of having

an army of even grown men under the command of weak and incompetent officers to realize what an exact parallel this presents to the attempted handling of male youth by women. Whatever theories we hold about liberty and the development of the individuality of a pupil, unquestioning obedience is an acquirement of the utmost value, especially when it involves self discipline as in the sacrifice of some petty indulgence. It is the perpetual giving way to self indulgence that paves the way to crime; the victim in time cannot bear to think of treading any but the easiest way. This is quite apart from another point made by Professor Adami, the loss of masculine models and example and their very unhappy replacement by feminine ideals and methods.

The American College of Surgeons was organized in Washington, D. C., May 5, "to elevate the standard of surgery, to provide a method of granting fellowships in the organization and to formulate a plan which will indicate to the public and the profession that the surgeon possessing such a fellowship is especially qualified to practice surgery as a specialty." Its organization committee was authorized to decide what should be the minimum qualifications for a surgeon, to urge colleges to confer a special degree on their graduate physicians possessing these extra requirements, to urge new laws to limit the practice of surgery to those having such a degree, to publish the names of the elect and request members to add F. A. C. S. to their professional titles. We have repeatedly called attention to the necessity of a special license for those who profess the special abilities which come with years of preparation. We therefore welcome an organization the sole purpose of whose existence is to study ways and means of accomplishing this desirable end. Without having had an opportunity to study all of the purposes of this new movement—and the methods by which it is proposed to attain them—it is quite impossible to express any definite opinion as to what they may be expected to accomplish. The work undertaken is confronted by enormous difficulties and obstacles. Opposition from many sources may be confidently expected. Even the warmest friends of the project will probably admit the possibility of abuses creeping in and nullifying much of the laudable purposes of the organization. Time and time alone can show the practical utility of the plan that has been outlined, and demonstrate its fitness to bring about the reforms that the present day practice of surgery unquestionably requires. The most that can be said at the present moment is to commend most heartily the launching of a movement so urgently needed, so well organized, and with such splendid backing. Any plan or proposition that can claim the sponsorship that the American College of Surgeons can, deserves the calm, careful consideration of every medical man in the country. Every detail should be studied and weighed. Dispassionately, every prospect should be considered. Then, when a verdict or decision is reached concerning the plan, it will be fair and well founded with all due regard and consideration for its respected promulgators. Although, at first blush, it was felt that the American College of Surgeons was a project of the American Medical Association, as events have unfolded it has become apparent that such is not the case. As a matter of fact, surprise has been growing

steadily that up to now the *Journal of the A. M. A.*, has not given its active support to this new organization. Since the American Medical Association has allied itself with every other movement for educational, legislative, sociologic and scientific reform, wonder is naturally excited that this plan to raise surgical standards and operative efficiency should be so completely ignored. In following issues we shall take up the consideration of the American College of Surgeons with the purpose of giving our readers an unprejudiced and comprehensive opinion of its objects, methods and prospects of accomplishing the praiseworthy purposes it assuredly has been created for. Announcement of the surgeons who are actively aiding this latest and most ambitious attempt to raise surgical standards not only points to the soundness of the organization, but wins for it a confidence in its underlying principles that will go far to insure its ultimate success.

The susceptibility of the gonococcus to heat is the basis of a treatment for gonorrhea brought forward in the *Journal of the Royal Army Medical Corps* for February by Major L. W. Harrison and Major G. J. Houghton of that Corps. The gonococcus cannot resist a temperature of 104° F. for six hours. This fact, together with the observation that in high fever a gonorrhea sometimes disappears spontaneously, led these authors to investigate whether this fact could not be used in the treatment of gonorrhea. They found that the urethra will sustain a temperature of from 114° to 119° F. provided it is gradually applied. They therefore had constructed a closed metal catheter, No. 9 to 10 gauge, inclosing a smaller one, No. 2 gauge, about one inch shorter internally, but projecting externally one inch. The small, inner catheter is open at both ends, while the larger, outer one is closed at both ends, but has a discharge outlet near the outer end. The double catheter is passed, and the inner one is connected by rubber tubing with an irrigation vessel elevated about eighteen inches from which a stream of water at 114° F. is allowed to flow, adding hot water gradually till the temperature is attained of 118, 121, 122, or even 125 degrees, according to the tolerance of the urethra. If the temperature is too high the meatus may be blistered. The irrigation occupies about one half hour and a suppository of 1-75 grain of atropine is administered night and morning before treatment. The usual aseptic and lubricating precautions are of course adopted. The authors report 16 cases thus treated of which 11 were acute and purulent, 5 subacute or chronic and watery. The gonococci entirely disappeared in a period varying from the 4th to the 11th day after the first treatment. The character of the discharge at once changed to mucopurulent or mucoserous and in 6 cases had disappeared entirely by the eighth day, and the administration of stout after the disappearance of the discharge failed to cause its return. There were no accidents of any kind. Epididymitis did not occur, indeed in one recent case with subacute epididymitis that condition disappeared after the first application. This method of treatment, owing to its simplicity, appears to demand a thorough trial at the hands of those who have considerable experience in the treatment of gonorrhea.

The increasing use of aluminum for kitchen purposes brings to mind the con-

troversy that a little while ago raged around the use of enameled ware, particularly of the "granite" variety. The chemical action which is necessarily connected with most culinary operations, owing to the presence of acids and alkalies, makes the character of the containers or the vessels in which cooking is done a matter to be carefully scrutinized. Canned goods and copper vessels have had their turn in the past, and now aluminum vessels have attracted attention. It occurred to the *Lancet* Laboratory to start a series of investigations as to the extent and way in which various aluminum cooking utensils were affected by the usual articles of food and savory substances used in cooking. All the experiments were conducted "as in the kitchen," so far as the vessels used for cooking were concerned, the food materials cooked in them being reserved for further testing in the laboratory. The conditions studied were the effect on aluminum of water, cold and boiling, of common salt (1 per cent in tap water), of water and acetic acid, the same with the addition of common salt, tartaric acid, carbonate of soda, of bacon, breakfast, and tomatoes with butter, salt and pepper, fried in an aluminum pan, of preparing soup, and of boiling various vegetables—such as onions with salt and pepper, carrots, brussels sprouts and apples, in an aluminum saucepan. The only case in which any result worthy of consideration was attained, was in the use of carbonate of soda, when the metal showed distinct darkening and the solution responded decidedly to tests for the metal. The use of carbonate of soda should therefore be avoided with aluminum vessels, though, as the *Lancet* report points out a warning to this effect is frequently issued when aluminum cooking vessels are sold. Some darkening of the metal and the merest traces of aluminum were found in the experiments with common salt, beefsteak, tomatoes, soup preparations, brussels sprouts and apples, but it was declared to be entirely negligible from a hygienic viewpoint in all cases. No darkening showed and no trace was found with acetic or tartaric acids, with onions or carrots. As for the effect of water, no evidence was found of the presence of a soluble salt of aluminum or of suspended particles of the oxide in water boiled in an aluminum saucepan bought in the open market. When cold water was allowed to stand in it for 24 hours, however, a white gelatinous substance sweated out, and this was found to contain aluminum and silica. Wet aluminum, therefore, seems to oxidize when left long in contact with the air, so that the leaving of water in aluminum water bottles when not in use is to be avoided. Covering the surface with a film of hydrocarbon oil is recommended to protect the metal against the combined action of moisture and air. The upshot of this interesting and practical inquiry seems to be that the use of pure aluminum cooking utensils need occasion no misgiving as to any possible evil effects.

Cancer houses have been investigated by Charles E. Green, F. R. S. E., with a view of determining whether or not there were any architectural or location features in common. His article (published by Wm. Green and Sons, Edinburgh and London) is a distinctly new and perhaps valuable contribution to the etiology of this baffling disease, for he brings out the remarkable fact that the affection has some connection

with bad ventilation as a contributory cause. People with cancer generally live in "hollows" into which smoke from adjacent houses is carried, rarely in high places or plains unless the houses are low and overtopped by adjacent ones. If the houses of a city or district are all of the same height there is little cancer, but in a district where large modern houses have grown up and made artificial "hollows," the old houses thus submerged may harbor cancer but not the tall new ones. In explaining this curious fact Mr. Green is inclined to blame the smoke of coal fuel for he finds cancer far less frequent where wood fuel is used, and also rare where there is excellent ventilation. All this is exceedingly interesting and though it may prove nothing more than that persons subjected to injury by a bad environment have their resistance reduced, yet it still deserves study as it may help along the search for the real causes. "Consumption houses" may not be sources of infection as we once thought—indeed it is safe to say that an increasing number of physicians are coming to the opinion that tuberculosis is always an infantile infection and that as the bacilli cannot live long outside the body in circumstances considered sanitary, the "carrier" must have had at least an indirect contact with the infant. The disease is never a place infection for adults—at least there is no proof that it is, and the evidence points to infantile infection in every case. Consequently "consumption houses" merely reduce our resistance and are bad places to live in. The same reasoning may apply to cancer houses. Its germ, if it has one, may be as frail as any other and die more or less promptly outside of our bodies. But if cancer is a result of faulty metabolism or faulty internal secretions which have permitted some cells to turn criminal and run riot, then surely the process could be aided, though not necessarily originated, by living where we shouldn't.

Cockroaches as carriers of cancer are receiving considerable attention in Europe. According to the *Lancet* of Feb. 8, 1913, two investigators conceived the idea independently and though the facts presented are not conclusive they are sufficient to warrant an investigation of these dirty little scavengers. Indeed we are now so accustomed to the idea of disease being carried by the animals which feed on the garbage and dirt we collect, or on the tissues of unclean persons, that there is nothing startling in the view that cockroaches are also biologic as well as mechanical carriers. Dr. W. Melvill-Davison of England has asserted that the cause of cancer is an alga, which is also found in the bowels of cockroaches of several varieties. Though the evidence is declared inconclusive, it is at least remarkable that Smith and Townsend of our Department of Agriculture have isolated a vegetable parasite which they believe to be the cause of plant cancer. The ease with which insects may carry the disease from plant to plant may also explain some of the facts. Now comes Prof. Fibiger of Copenhagen who, by press reports, has found a worm in the domestic rat, the larval stage being passed in the intestines of the cockroach, and that the worm causes a cancerous tumor in the rat. He merely suggests a similar origin for human cancer. These speculations are of course based on the unproved hypothesis that cancer is a germ disease, though it may turn out to be dietetic or at least a metabolic toxemia. We mention them mere-

ly as a text for a short sermon on the possible dangers of all our "vermin" or scavengers. All these animals are semi-domesticated through the survival of those wild ones fittest to live on the crumbs which fall from our table. As they are house animals, their evolution has occurred in the short period since man has had houses, but in this short period they have developed the treasonable habit of carrying enemies to us, and the sentence of extermination is inevitable. The house rat has long been under the ban, so have the house fly, house mosquito, house mouse, the louse and flea. Perhaps the English sparrow, another messmate, will soon be detected in some unhygienic deviltry. The sermon is this, the evidence is overwhelming that we must live in such a clean way that we have no need for self-appointed animal scavengers like oriental dogs, buzzards, rats and cockroaches. There is no necessity for a crusade to kill these animals off. They will starve to death if we stop feeding them. The man who has a dirty back yard or cellar is a public enemy. That is, the sphere of public sanitary authority must be extended to our homes. A house can not be considered a castle safe from intrusion, if it harbors public enemies and outlaws. The era of cleanliness is here and woe betide him who still lives in oriental filth and medieval carelessness.

Speaking of cancer, attention should be directed to the May issue of the *International Journal of Surgery*. This number of this well known publication is devoted exclusively to malignant disease. Without question the many notable articles it presents by men qualified to write on the subject make it one of the most important contributions on all phases of cancer that has ever appeared.

MEN AND THINGS.

The Cause of Napoleon's Death.—So much uncertainty has existed in regard to the malady which led to Napoleon's death, the reputed causes ranging all the way from epilepsy to acute indigestion induced by an inordinate repast of fried onions that considerable interest is attached to an interesting discussion of the subject by Prof. Arthur Keith in a recent issue of the *London Lancet* (Jan. 18, 1913). This learned surgeon refers to the pathological specimens in the Museum of the Royal College of surgeons and brings forward abundant reasons for considering them authentic. As he says: It has always been felt that the long duration of Napoleon's illness—four and a half years—and the symptoms during the earlier stages of the Emperor's illness were incompatible with a disturbance of health solely due to cancer of the stomach. The French physician, Dr. Héreau, so long ago as 1829, made that aspect of Napoleon's case very clear; he supposed that the symptoms were due to an ulcer of the stomach. Dr. Boudouin a few years ago came to a somewhat similar conclusion, while quite recently Dr. Arnold Chaplin has accounted for Napoleon's anomalous symptoms by supposing that the illness commenced with an ulceration of the stomach, which ultimately became cancerous in nature. The outstanding features of Napoleon's illness were recurrent bouts of fever of the same nature as were then prevalent in St. Helena. No ulceration of the stomach could produce the symptoms of Napoleon's illness unless the ulcer was part of a general infection of the body. The tonsils became enlarged during the attacks; the lymphatic glands of the groin were affected; the feet and legs became edematous and swollen. We may safely infer, continues Prof. Keith, that the whole lymphatic system of the body including the lymphoid areas of the intestine were affected. There were symptoms of inflammation or of an infection of the great bowel. All the recognised symptoms of inflammation of the liver were present—pain in the region of the liver, pain behind the right shoulder, hardening and

swelling in the region of the liver, hiccough cough, showing the diaphragm was also affected during the attacks of fever. At the post-mortem examination the most certain signs of a former inflammation of the liver were found; its upper surface was adherent to the diaphragm by adhesions of old formation; it was enlarged and congested, so was the spleen. In the region of the cancer the stomach was adherent to the under surface of the liver, but such an adhesion cannot explain the generalized adhesion on the upper surface of the liver: there were no secondary deposits in the liver. Neither an ulcer nor a cancer of the stomach could produce the adhesions between the liver and diaphragm. Only the hepatitis diagnosed by O'Meara, Stokoe, and Antommarchi can explain that adhesion.

Explanation of Napoleon's Symptoms.—If, on the other hand, says Dr. Keith, the authenticity of the specimens is accepted, the symptoms of Napoleon's illness, the condition found after death, and the alleged incompetency of the medical men become understandable. The symptoms were those of an infection by one of those forms of microorganisms which we are only now coming to recognize and identify. The invading agent appears to enter the body by the bowel—often the great bowel. Diarrhea or dysentery may be the most prominent symptoms, the liver becomes secondarily the seat of infection and inflammation. The lymphoid system of the intestine becomes hypertrophied and diseased in its attempts to protect the body from the infection. The constantly recurring attacks of fever show that Napoleon was the subject of infection.

All the sources of endemic tropical disease were present in St. Helena. The water-supply was obtained from a distance and exposed in open vessels; the residents at Longwood had to protect themselves from gnats; rats abounded there, and goats were kept for their milk in St. Helena, but whether these goats came from the Mediterranean area or not has not been proved. Sir William B. Leishman, however, has informed me that all the symptoms manifested by Napoleon during life and the appearances found in his body after death, with the exception of the cancer in the stomach, are those which are found in certain chronic forms of Mediterranean or undulant fever. It is not suggested that the illness was Mediterranean fever, but a form of illness of a similar nature.

It will thus be seen that these specimens are almost certainly authentic. We have Sir Astley Cooper's word for it that they came to him from O'Meara; it has been shown that Antommarchi and O'Meara were on very friendly terms, and were together in London after Napoleon's death; morbid appearances, such as are shown by the specimens, were seen by Antommarchi at the necropsy, and that he had opportunities of taking them. If we accept them as authentic, then the complex nature of Napoleon's illness becomes apparent; his symptoms are explained; he was, as his physicians supposed, a subject of the form of hepatitis endemic to St. Helena. The necropsy showed that he also had become the subject of his father's illness—cancer of the stomach—a condition which was masked and overshadowed by his primary disease.

Dwarfs.[1]—Dwarfs are men in miniature; their organization, height excepted, is as perfect as that of any other men. But it would seem that they do not procreate dwarfs as might be supposed; their children reach the height of ordinary individuals.

However, say the *Annales de la Science,* it is worthy of remark that where there is a dwarf in a family, the child that follows is of ordinary height, but the next one is also a dwarf.

The intelligence of dwarfs is not inferior to that of ordinary persons, as the history of the three following would prove:

Jeffrey Hudson was eight years old when the Duchess of Buckingham presented him in a pie to the old Queen of England, Henrietta Maria, wife of Charles I.; a little later, to the great surprise of the spectators, he was seen to issue from the pocket of a servant of the palace of gigantic proportions, who had brought him in in this manner to amuse the Court.

---

[1] *Med. Press and Circular,* July 31, 1912.

In 1644 Jeffrey accompanied Queen Henrietta to France, where a German made some slighting observation about him in his hearing. Jeffrey felt very much offended, and provoked his insulter to a duel. The German came on the ground with a syringe! This excited the fury of the dwarf, who forced his adversary to engage in serious combat on horseback and with a pistol. The German was killed.

At 30 years of age Jeffrey was only 20 inches high, but he then began to grow, and finally attained the height of nearly four feet. He died in 1682 in the prison of Westminster, where he had been thrown for a political offence.

The second dwarf was called Borwilawski and was a Polish gentleman, celebrated for the variety of his talents. He wrote his own biography, and thus became famous throughout Europe. Like Jeffrey, he presented the marvellous phenomenon of growth in old age.

The third and last is Bébé, whose skeleton is preserved in the Natural History Museum; his wax statue is still to be seen in the School of Medicine, dressed in the clothes he used to wear when alive.

He was so small when he was born that he was brought to baptism on a plate wrapped in cotton! His cradle was a padded wooden shoe. At five years old he was already formed like a man of twenty, and weighed 9 lb. 8 oz. He was brought to Poland, to the Court of King Stanislas, to whom he became sincerely attached. The King also had a great affection for him and tried to have him educated, but it was in vain. Bébé never learned anything beyond dancing and beating time; he never could be taught to read.

Up to 16 years old he was of a lively and playful disposition, but from that age he began to lose his cheerfulness and a kind of premature old age overcame him. He died at 22, and was then three feet high. He was married to a female dwarf, whose height was also three feet. She lived to the age of 73, and died in Paris in 1823.

Kind Words.—Once in a while the unselfish work of the honest God fearing doctor receives recognition, but seldom does our profession have a higher tribute paid to its actual motives than the following from the *St. Louis Republic.*

The history of medicine is a history of sacrifice for the good of man. The physician encounters more hopeless misery and unutterable woe than all other trades and professions combined. You will find him everywhere; now among his star patients, who really pay him what they owe; now doing a thankless job of surgery in some public hospital, or bending over the form of some lone woman dying in a garret; but through the gloom and sorrow, in the path of pain and the way of death, his urbanity is never lost and his patience, like the celestial virtue, endureth forever. He may not be a saint. Oftener than otherwise he professes no creed; but when he enters the sickroom one may almost hear the sad, sweet words, grown mellow in the echoes of two thousand years: "In the world ye shall have tribulation, but be of good cheer; I have overcome the world."

Deaths of infants by overlying are said to average 500 to 600 a year in England alone, though we have heard so little of this accident in recent years that we were inclined to believe it had about been eliminated. Perhaps we have just as many cases in America. At least it would be a good idea to look into the matter with a view of warning young mothers that they might roll over on a young baby and smother it to death. The poor little helpless things have a perilous existence at best and there is no sense in continuing the remediable dangers. It is said that in some London districts every third coroner's case is a child under seven years of age. Are we any better? Infant mortality is still disgracefully high in spite of the wonderful improvement made through the work of the health authorities. Perhaps avoidable accidents are occurring as in Europe, and perhaps also some of the unexpected deaths of sick infants who sleep with the mother are really cases of suffocation from overlying. Babies love to sleep with parents in cold weather because of the warmth, but if properly protected as in a packing box with closed sides and sufficiently clothed and covered, they are far more comfortable.

ORIGINAL ARTICLES.

THE PASSING OF TUBERCULOSIS.[1]

BY

SIR R. W. PHILIP, M. D., F. R. C. P.
Edinburgh.
Hon. President of the Society.

In inviting attention to what I have ventured to describe as the "Passing of Tuberculosis," it is not my purpose to indulge in vague generalities or the expression of pious hopes. I ask you to look at actual facts—the extraordinary development of pathological knowledge and of therapeutic and preventive procedure within recent years—and consider *whither* these are certainly leading. The pessimism of the past regarding tuberculosis was the expression of ignorance and disappointment. The optimism which is reflected in the title of this address finds its justification in tangible evidence. Those of us who have lived through the gloomy period of pessimism are best able to appreciate the extent of the optimism implied in "the passing of tuberculosis."

The subject is before the profession and the country as it has never been before. The problem of tuberculosis is developing rapidly. Every practitioner must consider and must pass judgment regarding many of the issues. If I am right in believing that we are within sight of "the passing" none of us can remain mere spectators.

It requires little more than a casual glance to catch the impression that we are emerging from what may be described fitly as the "dead period" in relation to the disease. The profession and the public are now handling the matter as one of the live problems of the hour. This is an extraordinary change.

I remember well on my return from a term of study on the continent in 1883 to take up a university post, the surprise with which a respected professor in the medical faculty greeted my reply to his enquiry regarding plans for original work. When I informed him that in view of the discovery of the tubercle bacillus announced a few months previously I proposed to devote myself to tuberculosis, his blunt rejoinder was, "Don't think of such a thing. Phthisis is worn to a very thin thread. The subject is exhausted."

My experience was similar in 1887 when, as the outcome of laboratory observation and clinical work, the conclusion had been forced on me that concerted activity on a large scale would be needed in every community if the problem was to be tackled effectively. It seemed clear that if a sound programme, based on scientific facts and accumulating statistical evidence, were undertaken, the extinction of tuberculosis was possible to the community and the world. But when, convinced in my own mind, I ventured to approach certain civic and medical authorities with the proposal that the occasion of Queen Victoria's Jubilee should be utilized for the inauguration of a movement towards this end, a very wet blanket was thrown on the project. The city authorities said they had in view a scheme for sending sufferers from chronic disease, including cancer and consumption, to cottages in the country.

A leading university light went further and reproved me for the folly of proposing to treat consumption hopefully in such a *climate*. "When you tell me you have discovered how to get rid of the east wind

[1]Being Presidential Address delivered to the Glasgow Southern Medical Society, March 20, 1913.

and Scottish haar, I shall believe you may be trusted to do something to remove consumption—which is the special curse of our *climate*."

The want of knowledge and corresponding limitation of view was most natural at the time. Mediaeval opinion dies hard. Even yet it crops out from time to time. Public references are still frequent to the appalling incidence and mortality of what is described as the "national scourge." Yet what are the facts? Thanks to a variety of causes, as this audience knows well, Great Britain, far from being the pest ridden region which such allusions might imply, has for long had the lowest death rate from tuberculosis of the larger European countries.

One other historical reference. When I had been foolhardy enough at a public meeting in 1890 to press for the inclusion of pulmonary tuberculosis in the list of notifiable diseases, I was stopped in the street a day or two afterwards by a well-known sanitarian who advised me in fatherly fashion not to run my head against a stone wall. And a few years later, when the proposal was similarly broached at a Health Congress, an attempt was made to turn the laugh against me by the remark that the suggestion meant simply the "notification of spitting in public places"!

The "dead period" in relation to tuberculosis has lasted since the beginning of time. The race for the most part grew up with the notion that consumption or phthisis was an unresolvable riddle and that an annual leakage from the disease had to be accepted as inevitable. The extent of the leakage was unknown. It was little dreamt that the occurrence of the disease was due to causes which were largely in our hands and that the classic syndrome of the final stages of the disease, so graphically portrayed by successive generations of clinical artists, was chiefly the result of misapprehension and misdirection of therapeutic measures. The idea of tuberculosis as a blight brought on the fair face of humanity by conditions within the control of man remained unconceived. The poet sighed for a return of a Golden Age when Heaven itself would intervene and remove the curse from mankind. Here and there a seer essayed to depict—and a prophet to lament—the fateful link which man himself was constantly forging between himself and the disease. But the seer and the prophet were ignored or lightly spoken of by the learned world as dreamers of dreams.

It is impossible on the present occasion to refer in detail to the light that appeared before the dawn in this and other countries. The facts of the laboratory during half a generation prior to 1882 are known to you. Equally well known is the great development which took place in the recognition of physiological principles in relation to the housing of our people and the problems of sanitation.

Nor need I dwell on the actual dawn when Robert Koch in 1882 announced to the Physiological Society of Berlin that he had succeeded in isolating the actual morbific factor—the tubercle bacillus—by means of which tuberculosis could be induced in the healthiest animal and without which there could be no tuberculosis.

We are chiefly concerned tonight with the extraordinary *volte-face* which has resulted since that discovery was announced and the marvellous strides in pathology, therapeutics and preventive medicine which have been effected. The whole outlook on the problem has changed. Ignorance has given place to exact knowledge and help-

lessness to a systematized therapeusis and a statesmanlike scheme of prevention.

Review for a moment the pathological and clinical position of former days.—The contending opinions and oscillation of view as to the anatomical basis of the disease. You will agree with me that fifty years ago we were not much further forward in respect to the ultimate meaning and course of tuberculosis than Hippocrates himself. The classic description of the clinical features of so-called "phthisis"—the pathetic picture of the consumptive's progress downwards—represents little save the terminal effects of the infecting organism. Most of what are cited as favoring or predisposing conditions in the individual are in reality the misapprehended and misinterpreted effects of invasion already accomplished, while some of the later manifestations are expressions not so much of the disease itself as of lack of understanding and consequent error on the physician's part.

Let me invite you to brush aside these older notions and, in the light of advancing pathology, to reconstruct the conception of what tuberculosis really is.

We may premise then that tuberculosis is an infective disease due to inoculation with the tubercle bacillus. Let us go a step further, and here the analogy with syphilis will prove helpful. Tuberculosis is induced, like syphilis, through the entrance into the system of a specific organism. The point of entrance may be theoretically anywhere—either a cutaneous or mucous surface. Both in tuberculosis and in syphilis there are certain more common sites of inoculation. In the case of tubercle, the mucous surface is more frequently infected than the skin, although I am inclined to think that the cutaneous structures are primarily affected oftener than is usually supposed.

We may restrict ourselves for the moment to the mucous surface. Although the point of inoculation may be anywhere, certain localities seem to be more readily invaded. While any point, from the lips down to the anal orifice in the one tract and from the nostril to the ultimate alveolus in the other, is liable to attack, I would lay stress on the posterior nares, the faucial and the tonsillar region as being especially vulnerable.

Whether inoculation occur in that region or in the intestine or in the larynx or in the bronchiole matters relatively little for our present purpose. The significant fact is that successful inoculation may be accompanied by little, if any, local change. The surface of the mucous membrane may appear intact even to the critical examination of the histologist. This is specially likely when infection has taken place—as it frequently does—during the tender period of developing childhood. At that date the mucous surfaces are more absorbent and succulent. This explains the great frequency of infection and likewise the limited evidence of surface lesion.

Tuberculosis has this, then, in common with syphilis that there is a definite, if not always traceable, point of entrance of the invading organism. It differs from syphilis in the fact that the disturbance at the seat of inoculation is generally slight and more transient. When inoculation takes place through the skin, the local manifestations are more evident and lasting. In such cases the primary sore may be a conspicuous feature as in syphilis.

At whatever point inoculation has occurred, whether through mucous membrane or skin, the further course consists, for the

most part, in a gradual spread by way of the lymphatic system. It is impossible to emphasize this too strongly. First, one or two glands in the neighborhood of the point of inoculation become enlarged and then progressively others at a greater distance and so on. The extent of the spread depends on the degree of resistance which the patient offers. There is evidence which suggests that the glands exert a definitely antagonistic influence.

In speaking of enlargement of glands, I should like it to be clearly understood that I refer not to the enlargement of glands which is characterized by gross deformity with associated caseation and, perhaps, softening, but rather to progressive infiltration in chain after chain of lymphatic glands, so slight in degree that it is for the most part overlooked. I am satisfied that, if the more likely seats of such lymphatic infiltration were scrupulously supervised in childhood and adolescence, the determination of tuberculosis at the lymphatic stage would be a common event.

In respect of the progress of infection from the initial point of inoculation by way of the lymphatic glands the course of tuberculosis presents further resemblance to that of syphilis. As stress is laid on the presence of glandular enlargement in relation to a possible syphilitic infection, so we ought, I hold, to be similarly suspicious in view of a possible tuberculosis. Persistent glandular enlargement in any area—however slight the degree of enlargement—should not be passed over lightly. In the case of the child and adolescent, persistent enlargement of glands, whether in the cervical, in the axillary or in the abdominal regions, should be regarded as clinical phenomena calling for definite explanation.

I press the view with all the force of which I am capable, being strongly convinced that it is at the lymphatic stage that tuberculosis ought to be opposed and that, when thus opposed, its further spread within the system is readily prevented.

The later incidents in the progress of tuberculosis vary much—whether its spread takes place by the lymph stream or the blood current, we are not concerned tonight with details. For the present it matters little whether the infection is carried to bone or lung or kidney or brain. It is to the infective process as a whole that I ask your attention rather than to particular local or visceral lesions.

It must be constantly in our minds that the chief danger in tuberculosis lies not in the anatomical changes which are produced —whether in lung or in other organ. The significant factor in the process resides rather in the systemic intoxication, which is the necessary outcome of the bacillary invasion. The more important clinical features and the fatal termination when it occurs, are in greater part referable to such intoxication.

The tuberculous toxins would seem to act especially on neuromuscular structures. The dystrophic influence is seen in the progressive loss of sarcous substance and associated enfeeblement and irritability of muscle. To this I believe are referable the early manifestations of motor weakness both of limbs and of viscera—the feeling of fatigue, the disinclination for effort, the softening pulse, and the gastro-intestinal sluggishness. These are generally in evidence long before cough or expectoration or other indication of local lesion is forthcoming.

The clinical manifestations occurring in the course of tuberculosis vary greatly according to the resistance of the individual

and the intensity of the virus. It is a commonplace that an individual infected by tuberculosis may for long periods show little evidence of disturbance, general or local. Short of true arrest, the latency of tuberculous infection may be so complete that little, if any, evidence of present disease is determinable. Yet an exacerbation may occur without apparent reason.

These seemingly fortuitous outbreaks have significant bearing on our attitude as scientific physicians. The chief error of the past has lain in too exclusive attention to the local manifestation, whether glandular, osseous, pulmonary, laryngeal, renal, intestinal, or cerebrospinal, while too little thought has been given to the bacillary infection as such. In this sense, the frequently adopted separation between so-called medical and surgical tuberculosis is artificial and unscientific.

The doctor's attitude towards tuberculous infection should be similar to his attitude towards syphilitic infection. The tuberculized individual should be viewed pathologically and therapeutically from the same kind of standpoint as is the syphilitic patient. Each is the subject of a definite systemic infection. The process of tuberculization while it differs in numerous respects from that of syphilization, resembles the latter remarkably, not only in respect of its insidious spread but likewise in its protean manifestations and tenacious endurance.

If the pathological position be conceded, the first great move towards effective treatment will be the acceptance of—or rather the insistence on—a complete revision of the standard and methods of diagnosis. For the most part the diagnosis of tuberculosis is still made much too late, in respect both of the local or visceral involvement and of systemic disturbance.

The earliest manifestations of tuberculosis must be better defined and studied. Especially does the lymphatic stage require accentuation. The fine multiple enlargement of glands, to which I have alluded, must be searched for. An explanation must be sought for every such infiltrated chain of glands.

Symptoms suggestive of neuro-muscular intoxication must be viewed with suspicion and watched with care. To some of these I have referred already. Of special significance is general muscular dystrophy. It is loss of sarcous tissue rather than the loss of fat which is the essential in tuberculous wasting. It is common enough to find patients in an advanced stage of tuberculous intoxication with abundance of adipose tissue. It is loss of muscle which counts.

In respect of visceral—more especially pulmonary—lesions, there is room for much greater refinement of diagnosis than is usually practised or taught.

Bacteriological evidence must not be restricted to the demonstration of the tubercle bacillus. If we wait for the actual appearance of tubercle bacilli in discharges, we wait much too long. This is to delay declaration of war until the troops of the enemy are already evacuating the citadel they have seized and looted. The more recent bacteriological methods—tuberculin tests (cutaneous, sub-cutaneous, percutaneous)—have contributed greatly to ease and exactness of diagnosis. And there are signs that we are within no great distance of more satisfactory serological tests.

The refinement of diagnostic methods within recent years has opened men's eyes to the great frequency of tuberculosis among children. Accumulating experience at the tuberculosis dispensary led me many years

ago to institute what I termed the "March-Past" of the infected households. The facts educed by this systematic examination of the community led to the conclusion that tuberculosis was far commoner among children than had been supposed—that indeed tuberculosis was especially a disease of childhood.

My statement a number of years ago based on clinical methods that at least 30% of children in my own city were affected with tuberculosis was at first greeted with ill-concealed distrust. Yet the view has been entirely confirmed by bacteriological and pathological observations in different countries.

Such facts have thrown a flood of light on the etiology of tuberculosis. The disease is beginning to receive its proper place as an endemic plague which tends to affect the majority of children, in one shape or another, and the course of which—whether mild or grave—is influenced by numerous factors—both personal and local. The recognition of this truth is of paramount importance to the household and the community. If the principle of the "March-Past" were universally carried out, not merely at the tuberculosis dispensary, but likewise in general practice, tuberculosis *in its grosser* forms would disappear.

Glancing now at the therapeutic side, the change of outlook which has come about is no less remarkable. Tuberculosis has been shown to be most tractable, when taken in hand sufficiently early and sufficiently firmly. Who that is familiar with the results of serotherapy can fail to have remarked the extraordinary change which that treatment has effected on the clinical picture of disease? It is impossible to read those classic masterpieces of clinical portraiture, to which I referred a few minutes ago, alongside tuberculous patients in a well managed sanatorium, without being profoundly impressed with the transformation.

One illustration must suffice. No feature in the clinical history of the disease was more constantly dwelt on by the old writers than the occurrence of night sweats. Yet night-sweating is a non-essential symptom. Under proper conditions of treatment, it need not occur throughout the entire course even of fatal tuberculosis. Although it is my fortune daily to see many types and stages of tuberculous disease, it is now a number of years since I have seen an instance of night sweats persisting after the adoption of physiological methods.

Thanks to the widening appreciation of such principles in the care of the tuberculous patient, the essential features of the disease have been gradually differentiated from those incidental traits which are referable to faulty measures of protection.

Turning to direct therapeusis, I invite your brief consideration of the remarkable results of vaccine therapy. Considerable doubt seems still to linger in the minds of many regarding the specific treatment of tuberculosis.

Some of you recall the extraordinary alternation between congratulation and condemnation with which the first announcement of tuberculin was greeted. It so happens that I have employed tuberculin continuously since it was first made available in 1890. My experience in these early days led me to take a favorable view of its possibilities. For that reason and as the result of accumulating satisfactory experience, I have used tuberculin uninterruptedly up to the present time. The collective records are now very numerous and include a great variety of cases. The net

result of the observations is to substantiate the claim of tuberculin to be a specific remedy of great value, provided its employment be undertaken sufficiently early and maintained in properly regulated dosage for a sufficiently long period.

The disappointment and distrust, still voiced in many quarters, seem to me largely due to misinterpretation of the possibilities and consequent misapplication of the remedy or to lack of perseverance for a sufficient length of time. Too often the test of its value has been limited to its employment in cases where the diagnosis has been concluded comparatively late or even cases beyond the possibility of recovery. In other instances its employment has been interrupted prematurely. A hasty induction has been made and been reflected in general condemnation of tuberculin therapy.

Contrariwise my experience is, that given a case of tuberculous infection at a reasonably early date when the process is limited to the lymphatic system, or a case where, if it has advanced further, visceral involvement is localized and the systemic disturbance relatively slight, the steady, discriminating use of tuberculin generally turns the tide in the patient's favor and in many cases leads to cure.

Tuberculin is a subject of immediate interest to many of the members of the society. It may, therefore, serve a useful purpose if I cite briefly a few examples of its employment in different types of tuberculosis. I select advisedly difficult cases, where the outlook was definitely grave and where consequently the therapeutic value of the remedy was put to a severe test.

It seems better not to include cases of pulmonary tuberculosis about which, in the absence of the patient, there might be room for diversity of opinion as to the prognosis. I should say, however, that my results in the treatment of pulmonary tuberculosis have seemed to me no less satisfactory than those which I now cite. The following records refer to tuberculous adenitis, laryngeal tuberculosis, abdominal tuberculosis and genito-urinary tuberculosis.

Tuberculous Adenitis.—J. T. was admitted to my ward in the Royal Infirmary on March, 1910, on account of great swelling in the neck and intense dyspnea. There was much cyanosis. The patient was so ill that he had to be carried into the ward.

The history showed that for many months the patient had been troubled with tuberculous adenitis. The cervical glands were much enlarged. He had been operated on three times—once by Mr. Scot Skirving and twice by Mr. Cotterill. There was serious recurrence after each operation. At the date of admission many glands were found involved. There was especially a large mass immediately below the anterior part of the lower jaw. There was a very large mass likewise below the right ear which extended half way down to the clavicle and merged in another mass in front as already indicated passing round to the left side. In addition to this there were numerous discrete glands similarly enlarged. The larger masses were firmly matted together with the thickened cervical tissues and pressed severely on the trachea and other structures. Mr. Cotterill declined to interfere further and on that account the patient was sent by his employer, a manager of the Royal Infirmary, to the medical side.

Tuberculin was commenced and continued in progressive doses for six months and after an interval of three months for a further period of three months. The first few injections relieved the more urgent symptoms of asphyxiation. Within a few weeks there was striking reduction in the size of the several masses. At the end of six months the neck appeared almost natural. The patient returned to his work about this date, attending the infirmary as an ambulant patient from time to time for tuberculin treatment.

I saw him a few days ago when he told me that he had been continuously at work

without illness of any kind for the past two and a half years. The chin and neck presented a natural outline. There was hardly a trace of the old trouble, and his general condition was excellent.

Laryngeal Tuberculosis.—On 8th November, 1911, Mr. S. D. was seen by me in consultation with Dr. Berry Hart. He was suffering from grave laryngeal tuberculosis.

The laryngoscopic appearances as determined by Dr. J. S. Fraser and myself were as follows: The right false cord was congested and greatly swollen so as to obscure the true cord entirely. The surface of the swelling was smooth generally but stretching backwards from the swelling towards the inter-arytenoid region there was some iregularity of outline with superficial erosion. The left false cord and true cord seemed normal. Both lungs presented areas of infiltration. There was considerable hoarseness and some dysphagia. The more urgent symptoms had lasted some five weeks.

Operation for the removal of the diseased tissue either by the endo-laryngeal method or preferably by thyrotomy was suggested. This was opposed by me in favor of treatment by tuberculin. Tuberculin was begun on 15th November and pursued in progressive dosage until June, 1912.

For two or three weeks little definite change was determined. Subsequently gradual limitation of the diseased area became evident. At the beginning of March, i. e., after four months' treatment, the posterior end of the true cord became visible. Thereafter the congestion and swelling lessened steadily till the end of May, when the affected areas had practically returned to their normal condition. On the 27th June, 1912, he was examined again by Dr. J. S. Fraser who reported as follows:

"I have just seen Mr. S. D. and should like to congratulate you on the result. All I can now find is a very very slight swelling on the right ventricular band—indeed had I not been on the look-out for it I might easily have missed it. The true cord and the ary-epiglottic folds are quite healthy."

Abdominal Tuberculosis.—A. S., schoolgirl, aged 11, was admitted to my ward in the Royal Infirmary in May, 1908, suffering from abdominal tuberculosis. The abdomen was greatly distended. The fullness was especially conspicuous in the umbilical, hypogastric, right lumbar, and right iliac regions. Palpation revealed the presence of a large mass of irregular contour and consistence, with deep attachments, and only slightly movable. In addition, smaller masses could be felt to the left of the umbilicus and in the left iliac region. The girl was very thin so that the greatly swollen abdomen was the more conspicuous. There was no doubt as to the tuberculous nature of the lesion. There was also evidence of pulmonary tuberculosis in the right apex.

After a few days, treatment by tuberculin was begun, the injections being made at first every third day, with gradually increasing dosage. In a month's time improvement was evident. In four months' time the large mass had almost disappeared and the patient was discharged.

Two months later, the patient was readmitted as there had been slight recurrence of symptoms. A small round mass about the size of a mandarin orange was found to the right of the umbilicus. Tuberculin treatment was recommenced. In the course of two or three months all trace of abdominal disturbance had disappeared.

The patient has become a healthy looking girl with all functions natural. I have seen her once or twice a year subsequently and been unable to trace anything out of the way.

Genito-Urinary Tuberculosis.—Out of numerous cases available I cite particularly that of Dr. D. B., who is a colleague of our own and a trained observer. I give you the history briefly as much as possible in his own words:

"In the early part of 1906 while demonstrator in the university I began to feel out of sorts—had always a tired feeling though I continued to play football till the end of March. About the middle of February, I noticed that by day I passed urine more frequently than usual. This continued till the end of March when I went to London to study for an examination. While there during April the frequency disappeared but, towards the beginning of June, returned. Blood appeared in the urine at the end of June and I consulted Professor Caird. Tubercle bacilli were then found in the urine. There was pain on micturition and on the advice of Professor Wyllie, who saw me in consultation with Professor

Caird, I took urotropine which somewhat relieved the painful feeling. I gave up work but the symptoms continued and in the course of the autumn I began to pass water every hour by day and six or seven times by night.

The symptoms continuing, I was sent to Cornwall to spend the winter and felt better, the frequency of micturition being somewhat reduced.

On my return in spring (1907), blood was still present in the water and the frequency of micturition remained marked. In July, 1907, Professor Caird referred me to Dr. Philip when the symptoms were much as I have described."

At that date the patient was immediately treated by tuberculin and tuberculin was continuously used—with intervals from time to time—for many months.

The patient's record once more in his own words—runs as follows:

"The pus in the urine gradually decreased. The blood, at first always present, began to lessen and then to disappear from time to time. It might be absent for a month or two and then return for a few days. Subsequently it disappeared entirely."

Writing in January, 1910, the patient says: "I am about as fit as ever I have been. It is the gradual return to increased strength which has struck me most. I can easily do today what I could scarcely think of two and a half years ago."

Two and a half years later (June, 1912), the patient records as follows:—"During the past two years I have continued with one interruption to enjoy good health. During the whole time I have been going about with the exception of four days in March, 1912, and have been able to overtake a considerable amount of manual work while very often I walk from ten to twelve miles per diem up very steep hills without feeling the least exhaustion. In fact I was feeling so well in the autumn of 1911 that I rented a farm of over 800 acres and felt equal to the work of managing and looking after it. Up at 5.30 a. m. and out of doors nearly all day I feel nearly as fit as ever I did in my life. If it were not for a little frequency of micturition which is more an inconvenience than anything else I should consider myself in the best of health.

I have never had any ill-effects from the injections and the progress I have made I wholly attribute to the programme and treatment laid down at the beginning and to continued perseverance in carrying it out."

The other day in view of this address, I wrote to Dr. D. B. regarding his condition and his reply runs as follows:—"I am glad to be able to report that I am continuing in the best of health and have been very well since last I wrote to you. My weight is 13 st. 2 lbs. and has been about that for a considerable time. I am able to manage the farm without being in the least fatigued by the amount of work that has to be done. For instance last week on Monday and Tuesday I was working hard on the farm threshing barley. On Wednesday I was in Edinburgh Market. On Thursday I walked over all the farm (about eight miles) and on Friday went to Kelso Market. On Saturday I walked over a large farm at Jedburgh and came home at night—not a bit too tired to go to Church on Sunday."

A word as to the lasting nature of such cures. It is frequently suggested that the improvement is but temporary and that the results—however striking—are apt to disappear quickly. Such is not my experience. There are disappointments of course in this as in other departments of medicine. Speaking broadly, however, I am satisfied that when the treatment is maintained for sufficient length of time, that is, until cicatricial changes have progressed sufficiently and the case is afterwards kept under surveillance as a case of syphilis would be the satisfactory results continue. The histories I have quoted are themselves excellent examples.

I might illustrate the point by many others. The following is of special interest because of the gravity of the initial lesion and the known continuance of the cure for fifteen years!

On 23rd June, 1909, J. D., aged 28, a mechanic, suffering from acute pneumonia, was admitted into my ward in the Royal Infirmary. It was a pneumococcal infection and the illness was sharp and ran a natural course. The patient was discharged well in three weeks' time.

The point of interest is that examination of the patient revealed the presence of a tracheotomy scar. It emerged that the pa-

tient had been under my care in the Royal Victoria Hospital fifteen years before. At that time he was a lad of 13 years of age. Then the condition was one of grave laryngeal tuberculosis. The tuberculous disease was extensive, involving the ary-epiglottic folds and the cords. The epiglottis was much swollen and edematous. Dyspnea was urgent. Tracheotomy was necessary and was performed by Mr. David Wallace. The lungs were also involved, especially the right apex.

The patient was treated by tuberculin. In five months' time the patient was discharged with the larynx almost entirely well. The result was so satisfactory I took occasion to show the lad some time later at a meeting of the British Medical Association. Four years subsequently I examined the larynx with care and was hardly able to trace anything save slight cicatricial remains.

Thereafter I heard nothing of him till 1909 when he appeared at the Royal Infirmary with pneumonia. Examination of the larynx at this date revealed nothing abnormal. The patient reported that since the time of discharge from the Victoria Hospital the larynx had given him no trouble.

I might multiply cases endlessly, but for the present these must suffice. If vaccine-therapy is to have a fair chance it is essential that treatment be commenced while the defensive mechanism remains capable of response to the stimulation of the toxins contained in the vaccine. If the patient's system be already saturated with the toxins of the tubercle bacillus, the addition of small quantities of these can be of no value and may, indeed, aggravate the situation gravely. These considerations are important. They serve to explain why it is that tuberculin—the vaccine potential of which remains constant—produces good results in one patient and fails entirely in another and likewise, why a given tuberculin when injected in a certain dose may prove serviceable through sufficient stimulation of the defensive mechanism and when administered in larger dose to the same individual may prove harmful.

Our aim in tuberculin-therapy must constantly be to exhibit that amount of vaccine which stimulates, without disturbing over much, the protective mechanism. The successful determination of this optimum dose —which is neither the minimum nor the maximum dose—depends on careful clinical observation and experience.

If, in speaking of therapeutic progress, I have limited myself to aerotherapy and vaccine therapy, it is not because other advances have not taken place. Those are, however, the most striking. They are chiefly responsible for the remarkably improved prognosis which is now possible in many cases. To the more perfect application of these two methods we may look with confidence for still greater therapeutic triumphs.

As to the future developments in treatment, it is less easy to speak. There would seem to be ground for hope that further research in the department of chemo-therapy may reveal combinations which may prove efficacious, either independently or as adjuvants to other treatment. Here too the analogy with syphilis has suggestive bearings.

Thus far, we have considered the more striking advances which have taken place in pathological and clinical knowledge. There remain to be cited the no less remarkable developments on preventive lines.

The greatest factor in the rapid acceleration of progress here has been the general acceptance of the view that tuberculosis is an infective and an endemic disease. Twenty-five years ago the supporters of the view had a bad time of it—notwithstanding the discovery of the tubercle bacillus. The array of evidence on the other

side was considerable and received strong backing. The position was yielded only after a tough contest. Now the tables have been turned and the adherents of the older view get fewer every day.

The admission of the infective and endemic nature of tuberculosis has led to growing willingness to adopt measures in consonance with the needs. The necessity of applying to tuberculosis the great principles which have proved efficacious in relation to other infective diseases has been recognized.

First and foremost notification has come. Beginning with a hesitating adoption of the principle here and there in isolated centres, public opinion got more and more crystallized until there came to be a widespread demand in its favor. Today not one form of tuberculosis only but tuberculosis in all its manifestations is compulsorily notifiable throughout England. The same will shortly be effected for Scotland. It is noteworthy that some of the leading opponents of the measure, when it was first proposed, have wheeled round and become active movers in the reform.

Side by side with the growing insistence on notification, there has been forged machinery for dealing effectively with the immense mass of tuberculous material in the community. Such special machinery is necessary because of the protean character of tuberculosis. Consideration is needed not only as to the *amount* of disease, but also to its extremely varying manifestations. The latter is of paramount importance.

If I have succeeded in showing that the need for the earlier diagnosis of tuberculosis is pressing, there is no less need for satisfactory classification and proper assorting of the varying types of case.

It was considerations such as these which led to the institution of a coordinated scheme for dealing with tuberculosis in all its phases and stages. It was the practical needs of the situation which led to the creation of the tuberculosis dispensary as an information bureau, receiving house, centre of diagnosis, clearing house, centre for treatment in certain cases, centre for examination of contacts, centre for aftercare and centre of education.

With the development of the tuberculosis dispensary and its possibilities of satisfactory classification, the call became imperative for suitable distribution of the different types of case to different types of institution. A claim was made for the erection of several specialized institutions, so that the early and readily curable cases might be separated from the more advanced and incurable cases.

In this sense the sanatorium for incipient cases and the hospital for less early cases are developmentally extensions of the collecting and distributing centre—the tuberculosis dispensary—which must exist in every community if the tuberculous material of the given area and the problems which attach thereto are to be handled in accordance with modern scientific principles and to the best advantage of the citizens.

The institution of the Tuberculosis School and Farm Colony was evolved for the same reason and in the same kind of way.

The larger outlook on the tuberculosis problem which followed the determination of the close etiological relationships of childhood raised practical questions of much importance. Foremost among these was the provision of schools for different groups of tuberculous children. The establishment of these has constituted a fruitful

experiment. Tuberculosis schools are now beyond the experimental stage. To be really effective, such schools must be linked, on the one hand, with the coordinated anti-tuberculosis scheme and, on the other, with the educational authorities.

The essential in the conduct of such schools is that those in charge should be primarily concerned with the physical health and development of the child. Education in the ordinary sense of the word must take a second place. The needs of each child must be viewed from that standpoint. Educational methods must be adapted to the individual case. The tuberculosis school is thus an extension of the tuberculosis dispensary or the sanatorium or both, the medical staff deciding what patients are suitable for transference to the school and being responsible for the physical care of the child during its attendance.

The great defect of the older outlook on tuberculosis was its limitation to the care and treatment of individual patients—and these commonly in an advanced stage of disease.

The outlook of today is quite another. The individual patient is taken in hand no less than before. The latest advances in medical science are utilized with a view to diagnosis at the earliest possible moment and the subsequent treatment of his case. If it be possible to treat the patient at home, his dwelling is re-created on physiological lines. So far as is possible, the home becomes a sanatorium. If it is desirable for him to be removed from his surroundings, either in his own interest or that of others, a suitable institution is found for him. Whether that be the sanatorium, or the hospital for more advanced cases, or the farm colony, or the tuberculosis school, depends on the character of the case, the age of the individual, and other such factors.

But more than that. Instead of waiting, as in the old days, until tuberculous patients are brought for examination because of pronounced symptoms—which commonly means an advanced stage of the illness—a systematic search is made for the earliest manifestations of tuberculosis. This is especially significant in relation to the homes of the poor, but is applicable in every household. The detection of one case is made the occasion to have a "March-Past" of all the members of the household. In this way, tuberculosis is discovered while the weed is still at the seedling stage. It is much easier to deal with the seedling than with the grown tree.

The dwelling of the patient, likewise, is thoroughly taken in hand, whether the patient has been removed to an institution or is being treated at home. The inmates are taught in what respects the home conditions are faulty and learn how to re-create the dwelling in accordance with the principles of aerotherapy. To propose, as is sometimes done, to remove all patients from their surroundings—to institutionalize all cases of tuberculosis—is to plead ignorance of the pathology and treatment of the disease. The proposal is impossible and fortunately unnecessary.

It is the function of the practitioner trained in tuberculosis to attack the problem in the household, in the nursery, and in the schoolroom, among the rich or the poor. It is one of the cardinal principles of the tuberculosis dispensary that an endemic disease must be followed to, and met in the home. Thus once again we are up against the great housing problem. On this I may not further enter save to dissent from the view that it is impossible to treat tuberculosis satisfactorily in a two-roomed house. The experience of the tuberculosis dispen-

sary is in entire opposition to this. With the re-creation of the dwelling, which is effected every day by our tuberculosis doctors and nurses, tuberculous cases are treated in such homes with excellent results. More than this, it is becoming a commonplace that it is possible to introduce effectively into these humble dwellings—provided there be no radical defect of construction—a higher standard of physiological living than is frequently found in the many-roomed mansions of the rich. The housing problem involves much more than mere increase in the number of rooms or the size of the dwelling. We cannot give to every household a large house, but with a little trouble we can teach the household how to live, so as to prevent disease.

I am unwishful to disturb a peaceful evening by allusion to the provisions of the Insurance Act, even in so far as it relates to tuberculosis. In thus consulting our mutual comfort I crave you will allow me a single reference to the work of the Departmental Committee which was appointed to advise the Government regarding general policy in respect of the problem of tuberculosis in the United Kingdom. That committee has wisely insisted that whatever antituberculosis measures are available for insured persons must be made applicable likewise for the entire population of the country. You will agree with me that that is essential. An effective antituberculosis scheme must concern itself in the fullest degree with every aspect of the problem.

If the proposals of the committee, as embodied in their two reports, are essentially sound and sufficiently wide, there still remain many practical difficulties in carrying the proposals into effect. We cannot shut our eyes to the magnitude and delicacy of the issues. None the less, with the fullest realization of the difficulties, I remain perfectly sanguine that, when the remarkable change in the tuberculosis horizon, to which it has been my privilege to point you tonight, has been recognized and appreciated, the "passing of tuberculosis" will be admitted by anticipation. All the events of the past thirty years seem to me to justify the view that in a reasonably progressive community the "passing of tuberculosis" should practically be an accomplished fact within a generation and a half.

Towards this happy consummation it is perfectly clear that the chief influence lies with the general body of practitioners. It is to a united movement and common action on their part that we must look for the achievement of the result. It is in that belief that I have ventured to avail myself of the opportunity your kindness has given me to submit for your consideration certain aspects of this vast question.

I trust no one will conceive that any of the suggestions I have made can in any way trench on the proper domain, or restrict the energy of the general practitioner. If my anticipations be just, you will share my view that, for many years to come, the amount of work available to each practitioner will certainly not be lessened. But the hopelessness of ineffectual effort will be removed. The work will have the inspiration of expectation based on scientific certainties and legitimate calculation.

If, for some of our communities, the registrar general has been able to report that the mortality from tuberculosis has already fallen more than forty per cent. in ten years' time, there would seem to be little ground to doubt that, with the enlargement of knowledge and widening possibilities we have considered tonight, the mortality from tuberculosis should, within the period I have predicated, fall little short of the vanishing point.

THE ECONOMIC DIFFICULTIES OF THE GENERAL PRACTITIONER—THEIR PRINCIPAL CAUSES AND REMEDIAL MEASURES.

BY

HERMAN B. SHEFFIELD, M. D.

Instructor in Diseases of Children, N. Y. Postgraduate Medical School and Hospital; Visiting Physician (Diseases of Children) to the Philanthropin Hospital and North-Western Dispensary, etc.

New York.

The rank and file of the medical profession like the ordinary wage earner and struggling business man, is sorely experiencing the imperative need of social and industrial justice. Indeed, in some respects the general practitioner is by far more helpless than the common laborer. For, while the cost of living is steadily climbing to standards entirely beyond the reach of his ever shrinking income, he is not in the position to promiscuously raise his fees for the following reasons: Firstly, being obedient to the traditional oath of medicine, to be merciful to the sick and indigent, he is loath to break away from the sacred path of his predecessors and to be looked upon as a trader; and, secondly, were he to do so, without the strong backing of a union, he would soon be left in the lurch by the majority of his patients who could readily obtain medical aid from his less presumptuous competitors. In consequence thereof he has to be content with a yearly income of barely nine hundred dollars—according to most recent statistics—out of which sum, in addition to his daily bread, the public expects him to clothe himself and his dependents cleanly and neatly; to reside in a comfortable, well furnished apartment; to hire help to tend to his household and office, and to have the convenience of a telephone and other less expensive commodities of life. These plaints of the medical men were first discussed cautiously, behind closed doors, either among friends and colleagues or in medical societies. Finding, however, that these secret gatherings and mutual—sympathy—sessions not only failed to ameliorate their sad economic condition but, on the contrary, permitted additional hundreds of ambitious young men yearly to enter the already overcrowded profession, under the impression (judging by the outwardly prosperous appearance of physicians) that medicine offered a fruitful field of affluence, some physicians deemed it wise to ventilate their grievances in the daily press, hoping to arouse public opinion in their favor.

Thus far their appeals met with no response whatever, and, I believe, justly so, since they utterly failed to make out a good case. Whereas they presume that their economic embarrassment is due solely to colossal abuses supposed to be perpetrated by the laity against the medical profession, it can clearly be shown, that the people are least culpable in this direction; but that it is the physicians themselves who are annihilating their financial resources. Let us impartially study the situation.

Up to about thirty years ago, before the era of strict surgical cleanliness (asepsis), the public looked upon hospitals with the same degree of infernal fear as we do today upon the morgue. Owing to the dreadful complications (gangrene, erysipelas and general sepsis) that forced the death rate in surgical cases up to about 75 per cent., only such patients could be induced to go to hospitals, as were either picked up by the ambulance, were entirely homeless or invalided beyond expectation of recovery. At that time the medical profession, except

the few individuals absorbed in the study of some special subject for teaching purposes, took no interest whatever in hospital positions. There was nothing in them financially! As a rule, the sick were resigned to take a chance on the nauseating draughts of the apothecary and to die at home, rather than to linger for months in the dingy wards of the hospital and then to be brought home for burial. Therefore even those barely able to spend but a few dollars on a doctor and medicines surely stayed at home, and hence, though the doctor's fee was small, he had ample opportunity to earn a comfortable livelihood. However, with the epoch making introduction of sterilization and antisepsis; the marvelous improvement in surgical technique, which completely revolutionized the methods of treatment of disease and their results, and the establishment of training schools for nurses, whose intelligent cooperation made it possible to maintain all the latest achievements in hospital management at a high degree of efficiency, the attitude of the public towards modern hospitals soon assumed an entirely different aspect. Slowly but surely the people began to appreciate that a well regulated hospital, far from being a hot-bed of death and despair, quite the contrary, was a fountain of hope and life. And as even the very rich in case of grave sickness began to prefer the sanitary accommodations of the hospital to their gorgeously furnished, dust—and germ—laden mansions, the physicians of influence hastily monopolized every hospital position in sight. With these positions exhausted other equally keen physicians soon went about to establish new semi-private hospitals—ostensibly to accommodate the poor but in reality to cater to the rich. When we bear in mind the enormous cost of construction of these modern, so-called charity edifices, the high interest on the heavy mortgages, the immense disbursements for salaries, food-supply, drugs, dressings and instruments, and all other hospital necessities, we can readily appreciate the extraordinary sources of revenue required for their maintenance, and the enormous amount of hustling the hospital staff has to do to meet the demands. For, as is well known, it is the physicians who directly or indirectly are burdened with the support of these institutions!

From sad experience physicians have learned to know, that only those physicians are recognized by the public as able doctors, who hold positions in one big hospital or another, irrespective of their actual ability. Hence, whenever a physician desires to benefit by the prestige of a certain hospital, he bends every effort to get there. When he applies for a position to the lay or medical board, he is usually referred to some one in authority—the so-called *boss*—who politely informs him either that for the present there were no positions vacant, or that there were several applicants for the vacancy. But (!), if he could find his way clear to donate a goodly sum of money to start with (which ranges between $500 to $5,000), as for example, for the endowment of one or two beds, and, furthermore, see to it that the hospital received yearly a certain income through patrons or pay-patients, some sort of a satisfactory arrangement would be made, sooner or later. It stands to reason that only the rich can or need apply, and as the rich doctor is not concerned about his own income and is only interested in proving his capacity to furnish funds to the hospital, in order to hold his position, he scours every nook and

corner for patients able to pay for a private room, regardless of his personal remuneration. Nay, he even offers a commission (fee-splitting!) to the general practitioner for referring cases to him instead of to his former consultant, in order to make a good showing. Now, when we realize that every hospital of renown has anywhere between fifty and a hundred "solicitors" of this kind, and that, for example, in the city of New York about thirty per cent. of the doctors are under such oppressive obligations, is there any wonder that the remaining seventy per cent. have but small chance to get and to keep pay-patients, and that they are compelled to live from hand to mouth? But this is not all!

Finding this benevolent bestowal of hospital honors upon the highest bidders extremely profitable, and the demands for such unmerited tutelage steadily growing, the hospital management deemed it wise (of course, as usually, for the good of the service!), to create additional positions by splitting up the hospital service in a number of subdivisions. For instance, while originally a surgeon was privileged to operate on man, woman, or child alike, as the cases came along, nowadays the majority of hospitals have special surgeons in each department. That this innovation was not intended, as claimed, for the welfare of the community, can easily be proven by the fact that this rule applies only to strictly *charity cases*, i. e., ward cases, whereas every surgeon has full power to operate on all his *private* patients, irrespective of age or sex. Furthermore, instead of, as before, having only visiting physicians and adjunct visitings, the managers have created additional positions, in the form of "attendings," "associates," and "assistant adjuncts," the occupants of which are all forced to work like Trojans to keep the hospital coffers full. Now, the general practitioners would have little interest in these endless self-admiration faculties, were it not for the fact that these half-baked professors make the public believe that they are real specialists in their respective branches, and as already told, gobble up the greater portion of the pay-material that would otherwise go to the general practitioners and help them earn a livelihood.

Now and then medical men arouse considerable agitation over the supposed abuse of free dispensaries by patients able to pay private physicians. These statements are not based upon actual investigation. The fact that a woman wears a diamond ring that she has, perhaps, inherited from one dearest to her and hence considers it sacrilege to part with, is no indication of her capability to pay a doctor. Her breadwinner might possibly, for the time being, have been out of work which forced her to visit a free dispensary to obtain treatment for her poor baby! The sight of human suffering on every bench of the dispensary waiting room; the obligation to rub elbows with all sorts of people who often are neither clean nor well mannered, and the frequency of being disappointed by not meeting the doctor she is looking for, are ample deterrents from visiting dispensaries, except to the very poor who cannot help themselves, or to those few people who are either morbid on clinics, or after becoming richer, continue to indulge in the habit of going to dispensaries acquired during the period of their poverty. Dispensary abuse should by all means be stopped, but we should also remember that dispensary material is indispensable to teachers of medicine, who are often only too glad to waive their fee and to persuade their own

pay patients to visit the clinic for demonstration. Besides, many a poor young doctor has succeeded gradually to acquire a fair practice through his kind treatment of dispensary patients.

Physicians have surely much more reason to complain about the abuse of contract (lodge) practice. As is well known, contract practice was originally intended to insure the poor man and his family against disease, especially with the object in view of obtaining relief at home instead of in clinics and hospitals. It was particularly beneficial to the poor foreigner who, for a few dollars a year, enjoyed the privilege of selecting a physician who understood his language, traditions and habits. The physicians were entirely satisfied with this arrangement. However, as years passed by the original plan of serving the deserving poor has changed very materially. In the course of time many of the previously poor have become more or less rich, but, this notwithstanding, they continue to take advantage of the doctor's attendance. Nay, being usually the "bosses" of the lodges they exact much more attention than their poor brethren. As a matter of right and justice they should waive that privilege, in order to allow the lodge doctor more time for the care of the poor members; and they should engage the services of private physicians and pay regular fees according to their pecuniary circumstances.

In a recent address before the N. Y. Academy of Medicine on the "Future of the Physician," a prominent specialist laid particular stress upon the fostering of hygiene and sanitation as a cause of the physician's economic difficulties. In other words, by teaching the public how best to take care of their health, the doctors gradually lose more and more of their sources of revenue. While on superficial consideration this view meets with some plausibility, more thoughtful analysis shows its fallacy beyond a shadow of doubt. It is certainly true that owing to the self-sacrificing labors of medical men epidemic and endemic affections, such as yellow fever, typhus fever, cholera and hookworm disease, have been banished where civilization reigns; it is true also that, through the achievements of the bacteriologist and clinician, diphtheria and syphilis are practically curable, and typhoid and meningitis among others are soon to cease being the dread of the community. But it is equally true that by preventing communicable diseases and by reducing the high mortality that prevailed a few decades ago, thousands and millions of people are alive today needing medical care (even if it be only on rare occasions), who in the past would have served only as sources of prosperity to churchmen, undertakers and, possibly, tombstone setters.

After reviewing the aforementioned discussion of the subject in question, I hope the reader will agree with me that the physicians themselves are chiefly responsible for their unenviable lot. Physicians, like the people of a community as a whole, receive the deserts they deserve. It is up to them, therefore, to remedy their trouble. Surely they cannot do it singly and at once, but by organizing into a compact society they can accomplish a great deal in the course of time. The society should be composed of *general practitioners only*. As the semi-private hospitals form their most destructive opponents, let them unite to withhold all their pay-patients from these institutions, and send them to the numerous congenial private sanitariums where they are at liberty to treat their own patients or, as in surgical cases, do the after-treatment, if

need be, under the guidance of the surgeon. Consulting physicians or surgeons who seek notoriety in the public press by reporting fantastic cures of incurables or revival of the dead should be ostracized with full vigor, especially by refusing to consult with them under all circumstances. The same punishment should be inflicted upon consultants who upon careful investigation are proved guilty of failing to return to the general practitioner the cases sent to them for advice. Those engaged in contract practice should accept these positions only on condition that lodge members earning more than twenty dollars a week are to be exempt from participation in free doctor's attendance. Furthermore, these physicians should not be permitted to serve in the same lodge more than two successive years, or to contract with more than three or four hundred members at one time. This rule will effectually abolish the present practice of one doctor monopolizing ten to twenty lodges and leaving none for their colleagues. As general practitioners, like other mortals are apt for their convenience to disregard some rules and regulations adopted by the society, it would be in order to bond each member for a sum ranging between $500 to $1000, with the liability to forfeit the same, if found guilty of transgression.

127 West 87th St.

When the cause of jaundice has been removed, soda salicylate will remove the bile pigment from the blood more promptly than any other drug.—*Med. Summary.*

Nothing will sober up a wild drunk or settle a tempestuous hysteric quicker than a hypodermic of apomorphine, 1-10 grain dose for adult.—*Med. Summary.*

SOME PSYCHOLOGICAL FACTORS IN MEDICAL WORK.

BY

EMIL AMBERG, M. D.,
Detroit, Mich.

Aschaffenburg (School of Kraepelin) made the following statement, based on experimental proofs with associations:

"Under the influence of exhaustion, caused by a night which has been spent in work, or sleeplessness, or without nourishment, the narrow causative (begrifflich) relations between the test word and reaction are gradually lessened. They are substituted by such forms which are caused by long-existing practice. Especially the speech relations outweigh the others. The exhaustion increases, the inciting idea works less and less by its contents, etc."

Bettmann (School of Kraepelin) has shown that mental work used in adding for one hour and walking for two hours decreases the mental efficiency. The mental paralysis after both kinds of work showed itself in the prolongation of the time for the perception, for choice and execution of associations, furthermore, in the weakening of the memory and in retarding the gain by exercise. Besides this, he has shown that the influence of very great fatigue (night experiment) could be traced for several days. Bettmann also has proved that the psychological experiment could show the presence of an influence even if its effect in the judgment of the individual has long passed.

These facts are of great importance for our every-day life, in which we are called upon to fulfill tasks of various kinds. They obviously and vitally concern the physician and surgeon. It is evident that some physicians treat in dispensary and private practice, or in both, many more patients a

day than is compatible with good work. It cannot be avoided that many essential points will be overlooked. Bettmann has shown (see before) the presence of an influence, even if the individual thinks it has passed. This proves that a physician may have not recovered from fatigue, even if he thinks he has recovered. It is evident what dangers may arise to a patient hereby, i. e., by faulty and incomplete examination, etc.

An experienced member of our local medical profession made a very important statement the other day. He said: "I soon found out that I could not be out night after night attending confinement cases, and be in a fit condition to do surgery the next morning, nor could I drive around from one end of the city to the other all day, and then have time for study and investigation." This man, who is of exceptionally robust health and more than ordinary mental strength, felt that there is a limit to human ability and endurance.

To what extent excessive fatigue may influence the action of a physician is shown by the following experience of Wundt (Kleine Schriften, Volume II, page 449):

In the winter of 1855-6 I lived as assistant in the Woman's Department of the Medical Clinic in Heidelberg which, at that time, was under my esteemed teacher, Hasse.

For a number of days successively I was called every night to see very sick patients. Unusually exhausted by the heavy work during the day, it happened repeatedly that I dressed myself while still half asleep, visited the sick and gave the necessary orders, without being really entirely awake. I acted in the single instances more mechanically than of my own free will. That referred, as a rule, only to the customary order of pain-relieving or other symptomatic remedies. Now, one night the following happened:

I was awakened and called to a typhoid fever patient who was violently delirious, whereby she disturbed the other patients. I went to see the patient, again being apparently awake, but in reality being in a dreamlike condition. I say apparently awake, because I carried on a conversation with the nurse and other patients, just as this is done while in the state of being awake. Yet, in my recollection it became perfectly plain to me that I was not in a state of clear consciousness, even if I said the proper things at that occasion, so far as it concerned the contents. This contents consisted simply in the customary repetition of the usual remarks. When it became necessary to give a quieting medicine to the patient, I accidentally beheld a bottle of tincture of iodine in an opened wall case. In this moment the idea occurred to me that tincture of iodine was the proper medicine in this case. I had the patient raised, carefully filled the spoon and tried to give it to the patient. Luckily the patient spit out the few drops which entered her mouth and pushed back the rest, which astonished me very much. I still remember distinctly that I was in that moment clearly conscious that it was tincture of iodine, but that I was also firmly convinced that tincture of iodine was the proper remedy in this case.

At that time in such cases in the clinic, a coffee-spoonful of the known tincture of opium with saffron (laudanum liquidum Sidenhami) which resembles in its color the tincture of iodine very much, was used. Nevertheless, in this case there was no confusion. I knew exactly that at that place only a tincture of iodine was standing, and that the remedy I gave was iodine; yet, just as distinctly, I had conveyed all

the qualities of laudanum to iodine and forgotten entirely those which belonged to the latter. Even the astonishment of the nurse could not bring me to a realization of the error of my idea. Only after I had arrived again in my room did I become suddenly conscious of the state of affairs. I then became immediately awake and understood immediately that I had acted in a kind of state of somnambulism. Terrified by the thought of the possibility of endangering my patient, I awakened my fellow-assistant and also communicated early in the morning the occurrence to our professor, and only quieted down as the further course showed that anxiety was not necessary.

The care of those days has left such a deep impression on me that the occurrences of the night remained impressed upon my memory, so I imagine to have still a vivid recollection of the condition of my consciousness in the half-sleep of somnambulism. It appears to me that I percepted correctly the impressions of sight and hearing, yet differently than in a normal condition. The objects appeared to be farther away than ordinarily, and also the words I heard seemed to come from a greater distance. Besides, there was a certain feeling of haziness of the sensorium, perhaps distinctly similar to that which one can observe on oneself in the state preceding an attack of syncope. Yet, the condition remained on the same level all the time so that it was possible to perceive and to act, as this can happen also in the state of syncope during a certain period. The latter I have experienced several times in hot and badly ventilated rooms, when the attack usually happens to disappear quickly after stepping into the fresh air. The condition also has a certain resemblance to that of somnambulism, I think, because the consciousness is diminished. One can take part in a conversation, but one has only thoughts and words ready which originate in the nearest customary associations, therefore, one answers at times wrongly or incoherently.

Let us consider surgical work, which must be done then and there, and in which nothing can be left to second thought. Every move during an operation is significant. The great differences with the different surgeons are, of course, dependent to a great extent upon the differences in personalities, all other facts being equal. Not only the fixed personality comes into consideration. We know how great these differences are, yet each surgeon acts differently under different conditions. In an operation on a bone, e. g., we notice that a surgeon works at a certain portion of a bone. Suddenly, without any apparent reason, he changes the place on which he works, or the instrument with which he works, or both; this is sometimes done deliberately and with a clear purpose, but sometimes it is done half unconsciously. It is not very difficult to learn the reasons. First, the surgeon unconsciously brings other muscles of his body into play, because one set of muscles is tired out. Second, the sometimes long-continued work has a semihypnotizing influence on the surgeon and he wants to tear himself away from this condition and get a short rest so that he can attack the point again with a clear mind[1]. These points, which are very trivial on the first look, are of very great importance to the patient. I think that I have been able, in watching various sur-

[1] Weygandt (School of Kraepelin) says: "Change of work can cause an improvement of our disposition, a momentary impulse, and hereby a short improvement of our efforts."

geons, to notice this very plainly. This fact does not hold good only with inexperienced or timid surgeons, or surgeons of greater experience when they perform an unusual operation, but it can also be observed when a surgeon is tired out and must call upon his reserve strength in an operation which is familiar to him. Very plain conclusions can be drawn therefrom, and we are able to imagine what can happen when unusual conditions are found which require great bodily endurance and a quick decision, based upon clear judgment.

It cannot be disputed that, viewed from this angle, the practice of medicine and surgery as a whole reveals glaring sights. Everybody will recollect numerous examples. Only exceptionally are the conditions fulfilled which are in accordance with the simple and unassailable facts which experimental psychology reveals and which can be directly applied. It is evident that outer circumstances are to be accused for the shortcomings, but it is also needless to say that in a great many instances these outer circumstances can and should be altered. The life and death of a patient is not infrequently dependent upon the decision at a given moment and this decision is governed by influences which are generally not recognized in their true worth.

The exercise of medical practice in a given case requires the expenditure of energy within a more or less limited period of time. It is evident that any factor detrimental to the free display of the required energy may become detrimental to the patient. Inasmuch as the psychological experiments verify and enlarge the observations unaided by such means they deserve a wider application in such matters as heretofore.

THE PRESENT THERAPEUTIC STATUS OF RADIUM-EMANATION IN NASCENT STATE.

BY

G. A. PERSSON, M. D.,
Mt. Clemens, Mich.

Referring to radium-emanation it is intended to confine ourselves to radio-activity occurring in nature in form of emanations from the air, sea-water, and natural mineral waters.

We are in these modern days prepared to admit that radio-activity occupies a peculiar position, that of the connecting link between matter and force, but we have as yet not even mastered the alphabet of this wonderful subject.

Air.— Our present knowledge would seem to furnish ground for the belief that within the range of ethereal oscillations there is some particle of matter, some neuron or glandular cell the state of aggregation of which qualifies it to respond to these ethereal oscillations much as the ear responds to sound or the eye to light.

Speaking of light reminds us of that euphonious exclamation by the immortal Goethe—"Mehr Licht!" and in the present time of rapid progress its significance becomes apparent through recent discoveries of Roentgen rays and the Bequeral rays.

Truly we live in an age when mysterious phenomena of the ancients are made plain and many of Nature's secrets are being brought into the folds of science. The savants of centuries past made use of light as a therapeutic agent in form of sunshine and its great value was well recognized in the treatment of many diseases. Celsus advised its use in nervous disorders and according to Hippocrates "the sunbath augments transpiration and

makes us more resistant against bodily ills."

During the slow but eventful growth of the art of medicine the beneficial action of sun-rays has continually been recognized.

How its therapeutic effects are produced has at all times been a mooted question but our contemporaries, who today are so actively and enthusiastically engaged in the treatment of tuberculosis by sanatorium methods where sunshine and fresh air play the leading role, have at least ventured a suggestion in answer to the question: Whence came this great remedial force? Many private communications from medical men in eminent positions, having under supervision the great institutions where tuberculosis is treated by the most approved methods, contain very nearly a unanimous opinion which in substance is: "When we speak of climate in tuberculosis, particularly that of the mountains, its beneficial effects are due in a large measure to the radio-activity of the air."

Kaspari, Aschkinass and Gockel are, as far as can be ascertained the only authors who have contributed to the literature on this subject, they all claim much importance for radio-activity of the air to the human organism.

We are led by the hand of our modern scientist very close to Nature where her secrets are unfolded to us and it is here pointed out that healing agents of great powers are present even in the air we breathe which can, and we are promised will, be made use of in the treatment of diseases where its application is indicated. Nascent radio-emanation of the air as a therapeutic agent is not mere disarticulated hopes of the future but scientific possibilities under the command of experienced sanatorians.

Sea-Water.—We have heard a great deal about this remedial solution which Nature has supplied us with in such abundance. Of late years it has been used very extensively by some French physicians in the treatment of many diseases and very gratifying results are reported. Attempts have been made to explain its action on the ground that a large amount of sodium chlorid is introduced into the tissues. The well known circumstance that sea-water loses its therapeutic value when heated to boiling or after standing for some time (from 20 to 30 days) was never accounted for until Dr. Hernaman Johnson advanced the following opinion which has been accepted as the most plausible theory:

"In view of the facts that sea-water possesses radio-active properties and that its physiological effects are similar to those of radium-water there is good ground for the belief that its curative powers are due to the emanation it contains." Thus we find in sea-water a second source of nascent radio-emanation which has been made to serve suffering humanity.

Prof. Jolly finds that radium-water and sea-water are similar in the following properties:

First. General tonic and stimulant action; this is produced with great rapidity and thus differs from the slow effect obtained by medical tonics.

Second. The production of diuresis and the alternation in the output of urea and uric acid.

Third. Continued administration results in gain in body weight, with accompanying speeding up of metabolism, increase of appetite and increase of output of CO_2.

Fourth. Therapeutically, marked benefit is produced in neurasthenia, intestinal auto-intoxication, certain skin diseases,

chronic joint trouble, early tuberculosis, and some cases of albuminuria.

Fifth. Radium-water, whether artificially prepared or obtained from sea-water or natural mineral-water, owes its action to the dissolved emanation, which is a gas. This gas under natural conditions is constantly renewed but loses its activity fairly rapidly and is removed by boiling for some time.

Dr. Russ speaks of oceanic radio-activity as being referable to the denudation of rocks and the transmission of the dissolved or suspended radio-active material to the ocean. The considerable amount of radium contained in deep-sea sediments even from the most central part of the ocean, suggests that much of the uranium reaches the sea in solution or in very fine suspension.

Radio-activity is a force capable of producing all the diverse and powerful effects which are claimed for sea-water treatment and Dr. Maclean states that "no salt or combination of salts could produce such brilliant results as those obtained by the use of sea-water injections."

Natural Mineral Waters.—The third source of nascent radio-active emanation is natural mineral waters and we may here include the "mud baths" which are used in many localities.

What primary reason prompted first the use of natural mineral-waters for relief from pain, or when did man first seek the aid of mineral springs to restore normal functions when physiology had gone wrong?

These questions can not be answered, but we note the mention of mineral springs as far back as the early biblical era. Hippocrates demonstrated the curative effects of water apart from the supposed power of the presiding deity or spirit, and Rome left abundant proof of the balneological practice of her people. The checkered development of medical science has been marked by changing therapeutic methods, when remedial agents are accepted and again in due time discarded, their popularity being supported upon the fluctuating waves of prevailing fashions and contemporary medical opinions. "Spa treatment" has, however, remained constant as a therapeutic agent and physicians in modern times as well as savants of old made use of it as such.

It would be difficult to give a fair estimate of what has actually been accomplished in relieving painful and unpleasant symptoms or effecting a permanent cure in many diseases which have been treated by natural mineral-waters employed either externally or internally. The fact that "spa treatment" has stood the test of years —even centuries—and to-day enjoys an enviable reputation with the medical profession—and no less so with the laity—is in itself sufficient proof of its efficacy. The renown of any natural mineral-water is due directly to its therapeutic effects and the present conception of its curative powers is that of radio-activity.

Dr. Engelmann calls attention to the fact that in Germany radio-emanation therapy is growing rapidly. In the universities, academies and larger hospitals extensive investigations by means of radio-active waters are now going on. Dr. Loventhal of Brunswick, making his observations at springs possessing strong emanatory constituents, (*Bad. Kreuznach*) was first to establish the size of the dose and quantity serviceable or injurious to the body. This was a distinct step forward which made it possible to obtain better clinical results. Emanation in most mineral

waters is in form of a gas, a fact which to Prof. His suggested the idea of using it by inhalation method. A large number of patients were treated in this manner and in January, 1911, he reported to the Berlin Medical Association that very favorable results had been obtained. The treatment consisted of placing the patient in an "emanatorium" i. e., in a small compartment containing air laden with emanation, where they remained for several hours. Theoretically this form of administration was found to be ideal. Clinical observation however revealed conditions which detracted from its usefulness: First, emanation is very rapidly eliminated by respiration; second, in addition to being a simple gas emanation has other properties including the dispensing of induced activity, i. e., the emanation is precipitated on all solids with which it comes in contact. In view of these facts Prof. Strassberger of Bonn advised administration of emanation internally by drinking radioactive water. Dr. Engelmann in speaking of this method says: "I have been able to prove, in the case of a dog, that had a fistula in the duodenum, that the entire emanation, which was given in form of emanation-water through a pharyngeal catheter entered the bowel without any essential loss, also very little emanation was traceable in the feces. The whole quantity was absorbed within the bowels and transferred to the tissues. A depot was established, so to speak, in the bowels, whence the emanation entered the blood and pharmacological effects were obtained.

Many patients afflicted with rheumatism and gout have received this treatment in form of emanation baths, local applications of emanation poultices and compresses, also by inhalation methods and internal use of radium-water. We review with much interest the classical investigations of Prof. His of Berlin and Dautwitz working in Neusser's clinic.

From the result of the labors of these men it has become apparent that the primary disassociation of radium (gaseus emanation) are therapeutic agents with great power of producing remarkable results, particularly in rheumatic and gouty affections.

A series of one hundred and twenty-eight cases are reported by Prof. His (*Klinische Wochenschrift,* 1911, No. 5.) one hundred cases of chronic rheumatism and twenty eight cases of uric acid gout. Forty-seven of the one hundred chronic rheumatic patients were improved, twenty-nine were considerably improved, five nearly cured and nineteen uninfluenced by the treatment.

Dr. Loventhal of Brunswick, in a series of experiments, added radio-active material to water for bathing purposes on the basis of the practice at spas. His observations led him to conclude that radio-emanation being gaseous could as such not penetrate the skin, but on the other hand were readily absorbed by the mucous membranes of the digestive tract, and also by the lungs. His further conclusions are that radio-emanation behaves like any gas which is not a normal constituent of the body, being excreted to a slight extent through the kidneys and largely through the expiratory air.

It is pointed out by the same author that when the treatment is carried out l baths the absorption is only continued as long as the patient remains in the atmosphere laden with emanation from the bath-water and the foreign gas is excreted immediately. On the other hand, if it is carried out by means of drinking emanation water the absorption takes place slow-

ly from the intestines and the body is being constantly supplied with fresh emanation.

The physiological action of radio-emanation has been studied extensively by Prof. His and associates, first of which may be mentioned Dr. Fofanow's studies who demonstrated that inflammation produced by the introduction of foreign bodies such as urates, under the skin or into the peritoneal cavity undergo extensive changes, the inflammatory migration of leucocytes being completely arrested. Its action of activating ferments has been investigated by Braunstein and Bergell on pancreatin, Bickel on pepsin, Richet on lactic acid fermentation, Loventhal and Edelstein on autolytic ferments and Lowenstein and Wohlgemunth on diastasic ferments.

According to the modern views of Bloch, Schittenhelm and Brugsch the disturbance in gout depends on the retardation of the purin body metabolism and not only is the formation and breaking down of uric acid slowed, but the mutual relation of the two processes is altered and the excretion is extended over a much longer time and is not complete.

Upon the ground of these hypotheses Gudzent and Lowenthal using radio-emanation in a number of gouty patients were able to demonstrate that the excretion of uric acid and its salts are disassociated into carbon dioxide and ammonia under the influence of its action.

Prof. Saubermann's excellent work assists in a large measure to form the bases of radio-therapy for internal use. He has demonstrated that there really exists a close connection between the emanation and certain processes which take place within the human organism and further that a quantity of energy is developed by the atomic disintegration of radium into a series of decomposition products and though the emanation itself is inert, its mere presence brings about chemical reactions which are otherwise inconceivable. The conclusion is therefore arrived at that biological and physiological influences must take place in living cells and organisms as a result of the action from radio-emanation.

Prof. His points to a most significant fact regarding the variety of peculiarities in emanation from different radio-active substances with reference to physiological action, namely its selective behaviour. He thinks we may here find ground for the hope that in the near future emanation will be discovered that will act as a specific in the treatment of certain diseases.

The following biological conclusions are taken from literature on this subject:

1. Radium-emanation increases the solubility of uric acid salts. *Deutelmoser* and *Saubermann.*
2. Radium-emanation increases the coagulability of the blood. *Lazarus, Saubermann* and *Velden.*
3. The radio-activity of mountain air plays an important part in human life. *Aschkinass and Kaspari.*
4. In southerly winds, the physiological action of which is well marked, the radio-activity is exceptionally high. *Gockel.*
5. All increase in radio-activity in mineral springs makes itself felt in the human organism, a physiological factor which can not be ignored. *Bickel* and *Himstedt.*
6. The higher the emanation capacity of a given spring, the more striking the physiological action. *Mache, Curie* and *Laborde.*
7. Water rendered radio-active has a most unusual influence on the human organism. *Bickel* and *Deutmann.*
8. Owing to the inhalation of emanation in the galleries of the St. Joachimsthal pitchblend mines, where the air is radio-active, gout, rheumatism, and neuralgia do not occur. *Kottlieb, Kemen* and *Deutwitz.*
9. Radium-emanation causes an increase in the excretion of urea up to 34 per cent. and uric acid up to 14 per cent. *Wilke.*
10. Radium-emanation lessens blood pressure and cardiac activity. *Deutelmoser* and *Saubermann.*

HEMORRHAGE IN TYPHOID FEVER.[1]

BY

HARDEE JOHNSTON, A. B., M. D.,
Visiting Physician to the Hillman Hospital.
Birmingham, Ala.

Typhoid fever is characterized by an inflamed and ulcerated condition of the mucosa in the small intestine, and this inflamed and ulcerated intestine furnishes the reason for three different phenomena, closely allied and kindred in their common cause—I refer to tympany of the bowels, hemorrhage from the bowels and perforation of the bowels.

The normal peristaltic wave of the intestines reaching this inflamed area becomes interrupted; this being probably due to some depressed condition of the nerve terminals in the muscular coats resulting from the previously mentioned inflammation. And with this partial paralysis, a gaseous distention would almost of necessity follow. Let this inflamed and ulcerated gut be ballooned out by a gaseous distention and the muscular coats be put upon the stretch, a further loss of tone to the whole intestine is evident; and from the ulcerations an increased liability to hemorrhage. These ulcerations furnish the weak points in the line, and from them is to be feared that most dreaded of complications—a perforation. Ulcers in a distended gut, render it weaker, and are more to be feared than the same degree of ulceration in a flaccid gut. A bleeding ulcer would usually indicate a fairly deep ulcer, and it is not strengthened or rendered less severe by this blood letting.

We have then three conditions which are fairly indicative of the severity of the pathological process taking place in the intestine. First, a tympany; second, a hemorrhage, and third, a perforation. A continued tympany I cannot regard with comparative disregard, or separate it from its possible sequela—a hemorrhage. A frank hemorrhage I cannot but fear, not only because of itself, but I mentally picture a gut bleeding from a point that looks fearfully weak—menacing, a perforation.

Of course, not all hemorrhages need bring such an alarming train of thought for us. A little blood in the passage may mean nothing and it would be poor treatment to view it with any such baneful prognosis. But to me, hemorrhage has a big sound, and I would indicate no little bleeding by any such sounding title.

We are to be governed in our prognosis not alone by the severity of the hemorrhage, but also by the time in the attack it appears. In other words, a hemorrhage appearing late in typhoid, is fraught with a much less grave prognosis than a hemorrhage early in the illness.

As to the treatment:

To me it seems evident that the treatment of this condition should antedate its appearance. The most rational, the most sane, and the best treatment anticipates a possible hemorrhage, and is begun when its probable precursor—a tendency to persistent tympany, becomes evident.

I am no food expert and I do not believe I would know a well balanced ration "on the outside" when I saw it, but I think I know that a tympanitic bowel is not helped by the administration of any of these so-called liberal diets. To my mind it is a question whether they are liberal or pretty "close fisted" to a sick economy—at any rate, the proportionate risk seems greater than any possible gain. And so my patient, in this condition, would have to con-

[1]Read before Jefferson Co. Med. Society.

tent himself with milk or some form of liquid diet or nothing save water.

I would use turpentine stupes, and frequent enemas of fairly cool water to stimulate peristaltic movement; with the hope of expelling the gas through these means. If I did not succeed in reducing the distention, I would then introduce a soft rubber catheter into rectum, attaching to it a rubber tube whose distal end should be above the level of the bed. With a restricted diet, and through some of the means above mentioned, I believe I have generally been able to get rid of any seemingly alarming amount of tympany.

As to the treatment of the hemorrhage itself.—Some few years ago in my hospital work, I became convinced through sad experience, that the usual routine treatment advocated for the relief of this complication was unavailing, and probably based upon false premises. I refer to the usual opium, ice bag to abdomen, and elevation of the foot of the bed. Theoretically, it appears to me all wrong—practically, in my hands, at least, it has seemed to merely disguise symptoms and aggravate the tendency to further hemorrhage.

Let us consider these means separately:

An ice bag to the abdomen—I may be unduly skeptical, but if this cold can have any effect upon a bleeding point in the intestine, I am unable to see it. I doubt that the same degree of cold would do much toward controlling a hemorrhage from the skin, and when we consider that it will have to penetrate skin, muscles, peritoneum, and then the intestine, it must surely be a rather attenuated article by that time.

Raising the foot of the bed—if this does anything, it simply banks up the hemorrhage in the intestine, increases the tendency to tympany which of itself would increase the liability to continued bleeding.

With the ice bag, I doubt that it does anything save render your patient a little more uncomfortable.

As to the opium.—This is given to quiet any peristaltic movement of the intestine, so that the bleeding point may not be aggravated by any such action. I believe it will inhibit peristalsis, and for this reason alone, is about the last thing in the pharmacopea that should be given under these circumstances. You inhibit peristalsis and in inhibiting this normal drainage of the intestines, you almost certainly increase, and for some time, the tendency to a tympanitic distention. This distention more thoroughly than almost anything save direct trauma, would stimulate the bleeding point to a continued activity.

Under opium, too many times have I seen the first hemorrhage, followed by another and another, until my patient was reduced almost to extremis, or died.

It seemed to me that the indication was to empty the bowel of gas and blood as thoroughly and as naturally as we could. Believing this, opium was tabooed and I ordered for the next patient who had a hemorrhage cold irrigation with three or four gallons of cold water, allowed to flow slowly into and out of the rectum. Naturally I felt nervous over such a seemingly radical departure; but fortunately, for me and my patient, he did not perforate nor was there any return of the hemorrhage.

Were the patient severely shocked by the hemorrhage, I would not use cold water in irrigating, but in such an instance warm water would be my choice. As a rule, however, the first hemorrhage is not sufficiently severe to cause much shock, though of course the ulcer might be so located that the first hemorrhage would be the one and only—and cause death.

I have not had many cases upon which to try this line of treatment, but so far it has been entirely successful—they have not only gotten well, which they might have done anyway, but there has been a conspicuous absence of recurrent hemorrhage. I have had six cases of hemorrhage that I have treated with irrigation.

The gut is emptied, the muscular coats are probably stimulated by action of the cold water to contract and the ulcer or ulcers have a comparatively clean base to contract upon.

Of course I allow little food and substitute sponges for tubs, and avoid any undue stimulation.

With the exception of possibly horse serum, I have my doubts as to the efficacy of any medicaments directed toward the controlling of this condition—or rather I should say that I personally cannot vouch for them.

POST MORTEM FINDING OF A LARGE FOREIGN BODY IN THE STOMACH.[1]

BY

E. S. EDGERTON, M. D.
Pittsburgh, Pa.

Some time ago in the dissecting room of the Anatomical Laboratories of the University of Pittsburgh, my attention was called to a hard object in the stomach of one of the cadavers under dissection by students. On examination, the pyloric end of the stomach was seen to form a tube-like process about 5.5 cm. in diameter, 12 cm. long, and extending 7 cm. to the right of the midline, in an approximately horizontal direction, opposite the first and second lumbar vertebrae. The gastro-hepatic ligament was continued on to this process, and the anterior layers of the great omentum were continuous with the peritoneum of its entire length. At the fundic end of this elongated portion, there was a vertical linear constriction extending from the lesser to the greatest curvatures, and being most marked toward the greater curvature, simulating a moderate hour-glass deformity. This was present only on the anterior wall. Along this line toward the lesser curvature were a few adhesions to the anterior abdominal wall.

An incision was made in the anterior wall of the pyloric process, and the bowl of a large silver plated tablespoon was disclosed. The rounded point of the bowl rested against the right tip of the elongated pylorus, while the handle of the spoon projected back into the fundus of the stomach. The spoon, on removal was found to be heavily corroded and blackened. The edges of the bowl were slightly bent in, which must have been done before swallowing. Data concerning it are as follows:

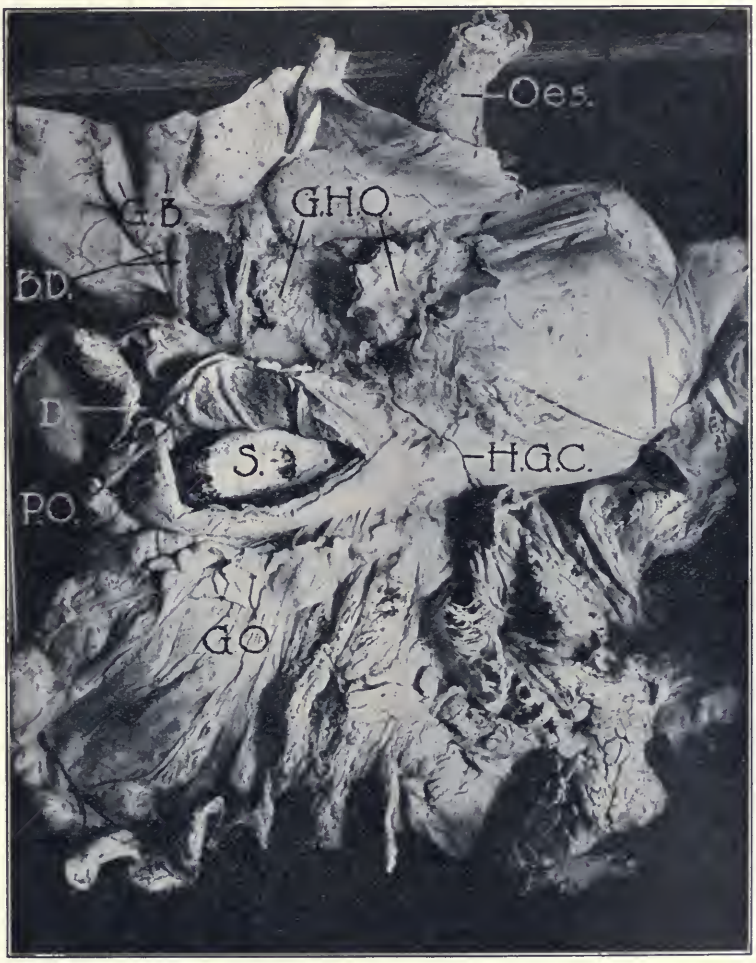
Length 21 cm.
Greatest width 3.7 cm.
The least circumference which would allow for its passage 8.75 cm.
Weight 56 gm.
No other foreign bodies were present.

At first no distal opening could be found from the elongated portion of the stomach, and it was thought to be a blind sac. However, on probing back along the duodenum, the two were found to communicate through an opening of about 3 mm. in diameter. There was some evidence of ulceration about this opening, though no scar tissue, and the narrow condition of the pyloric orifice may have been due to post mortem change, since this body had

[1]From the Anatomical Laboratories of the University of Pittsburgh, Pittsburgh, Pa.

been embalmed some months previously with a fluid containing carbolic acid, alcohol and glycerine. On opening the entire stomach and esophagus, no evidence of ulceration or trauma could be found, except the eroded condition of the mucosa, opposite the tip of the spoon and its adjacent edges. No clinical history could be obtained, save that the man was a Pole, 35 years of age, and that the immediate cause of death was lobar pneumonia.

The body was large, well proportioned, and showed a very good state of nutrition, more than the usual amount of fat being found in the subcutaneous tissues, omentum, etc. The right lobe of the lung showed the usual evidences of pneumonia.



Photograph of Stomach and Adnexa, Showing Spoon and its Relations to Surrounding Structures.

Oes., oesophagus; G. H. O., gastro-hepatic omentum; G. B., gall-bladder; B. D., bile ducts; D., duodenum; P. O., pyloric orifice; S., bowl of spoon; H. G. C., moderate hour-glass constriction; G. O., great omentum.

I believe that this case is of particular interest, because of the great size of the object swallowed, the tolerance of the stomach, of the apparent lack of interference with digestion and nutrition, and the

probable absence of marked gastric symptoms.

I have examined reports of nearly one hundred gastrotomies performed for the removal of foreign bodies, but apparently in no case was the object of equal size with this spoon when swallowed. Heidenrich and Nancy in 1891, performed a gastrotomy upon a sword swallower and removed a silver spoon 20 cm. long, weighing 27 gm., which had been in the stomach fourteen days. Podaillon in 1886, removed a plated iron fork 21 cm. long, and weighing 59 gm., from the stomach of a man who had swallowed it fifteen days previously. Probably neither of these articles equalled in width this table spoon, which, with a width of 37 mm., passed through the esophagus, the diameters of whose constrictions are usually quoted at 20 to 25 mm.

Many interesting cases are reported of multiple small articles swallowed by insane patients, or with suicidal intent, or as a means of earning a livelihood. Meisenbach in 1898 reported the finding of 25 staples, 15 screws, 6 horse shoe nails, 30 wire nails, 16 32-caliber cartridges, 3 38-caliber cartriges, and two broken knife blades which had been in the stomach nine years. Graff in 1897 recovered 120 nails from a single stomach.

Most cases give rise to more or less severe symptoms of pain, vomiting, anorexia and emaciation, but this is not always so. Kortmann in 1897 removed two shellac stones from the stomach of a painter 55 years old, which had been present 17 years, with but moderate symptoms. The stones weighed 670 gm. The patient had been in the habit of drinking an alcoholic solution of shellac while at work. Recovery was complete. Vandivert and Mills in 1911 reported the finding at necropsy of 453 nails, 42 screws, 9 bolts and 942 small miscellaneous articles, in the stomach of a demented patient. This individual had presented no symptoms referable to the stomach.

In the present case it is impossible to say what symptoms, if any, this individual suffered. There was no gastroptosis. There was no evidence of malnutrition, but rather the contrary. From the anatomical changes, and the condition of the spoon, it seems safe to conclude that it had been present for a long time. There were no scars, and the slight erosion of mucosa, the few adhesions, and the moderate hour-glass deformity, alone indicate any gastric disorder or symptoms thereof.

BIBLIOGRAPHY.

Friedenwald and Rosenthal, 1903, *N. Y. Med. Jour.*, July 18th, Vol. 78, p. 110.
Graff, 1897, *Deut. Med. Woch.*, No. 15.
Heidenrich and Nancy, 1891, *Semaine Med.*, i. See also *Schmidt's* Jahrb., No. 232, p. 174, and *Jour. Amer. Med. Assn.*, Vol. 30, Mar. 5th, 1898, p. 513.
Kortmann, 1897, *Deut. Med. Woch.*, p. 418. See also Kelly and Noble, "*Gynecology and Abdominal Surgery*," Vol. 2, p. 362.
Meisenbach, 1898, *Jour. Amer. Med. Assn.*, Vol. 30, March 5th, p. 513.
Podaillon, 1886, *Bull. de l'Acad. de Méd.*, Aug. 24th. See also *Jour. Amer. Med. Assn.*, Vol. 30, March 5th, p. 513.
Vandivert and Mills, 1911, *Jour. Amer. Med. Assn.*, Vol. 56, p. 180.

EUGENICS.

Eugenics broadly has to do with all measures that make for the improvement of conditions affecting the life of human beings, says Harvey in *Journal of the Medical Society of New Jersey*. Race culture, the application of the laws of sanitation to the housing of the people, clean streets, destruction of disease-carrying insects, suppression of dust nuisances, the supply of pure water, clean milk and wholesome food, the protection of workers from the effects of dangerous callings, the securing proper hours of labor for children and women, the limitation of preventable diseases, notification, quarantine and segregation.

EXTERNAL HEMORRHOIDS—THEIR RADICAL CURE.

BY

G. M. SAUER, M. D.,
Ogilvie, Minn.

This is one of those painful and terribly aggravating conditions the cure of which by the general practician always adds materially to the number of his patients, his bank account, and his reputation as a surgeon. There is hardly an affection that patients will pay more readily for relief from than these pile tumors or protruding hemorrhoids. Almost invariably they are very painful, sensitive and a constant source of irritation, to say nothing of the tax they impose on the nervous system.

The method I employ for their radical cure is not in any way difficult or intricate, nor does it require any more than ordinary ability, aside from the most scrupulous care that everything is done to prevent the infection that is so liable to occur if proper cleanliness is not observed.

The instruments required are neither many nor expensive. Good chromic catgut No. 1 or 2, 20 or 30 day, a large and small special pile clamp, a scalpel and a pair of scissors are the principal ones together with the usual dressings. The author uses a special No. 6 Mason pile clamp with a dove-tailed serrated end which grips the tumor at the base very firmly. I have found that the usual clamp was too large, and in order to have a smaller one to use in cases of small tumors, I have had a small one made of the same type, but only about ¼ size. This has been much more serviceable for tumors that were not large.

The patient to be operated upon is given a laxative the day before the operation, and in the morning before coming to the office is instructed to use a good rectal enema thus completely emptying the rectum and leaving the field all clear.

A one per cent. sterilized cocaine solution is used to secure local anesthesia, and each tumor is injected with a few drops of the solution. When the loss of sensation is complete the prolapsed hemorrhoid is clamped close to the base. It is then cut

off even with the top of the clamp jaws with a sharp scalpel. Sometimes it is necessary before clamping to have the hemorrhoid well pulled up with the thumb forceps in order to insure that it is well clamped at the base. The tumor should not be lifted up too much, however, as it is easy in some cases to get too much tissue in the clamp. After the tumor is cut off we have a clean surface and no hemorrhage. Now the suture is inserted next to the clamp and sewed in under and over it while it is still on the tumor. Two or

more inches are left at the end of the suture which is continuous and sewed loosely over the clamp (not tight). When you have reached the nose end of the clamp, unnotch it, withdraw through the loose ring of sutures, and then draw them properly together. It is always wise to have the suture double in making the first stitch as this makes it easy to tie the first end by cutting one of the threads. Then it is good practice to double it just before reaching the end as this gives better opportunity to tie the last stitch. After all the tumors have been removed as directed, good healing surfaces remain, all sewed up, and without the slightest danger of hemorrhages.

Happily this operation will only lay the patient up for a few days and he is soon around again feeling like a new person. For the first few days to reduce local soreness and pain I use a good rectal suppository which helps out very much. Following is a very satisfactory formula:

℞

Morphin sulphate 0.06
Bis. subnitrat. 4.00
Pulv. opii 1.00
Ex. belladonnae 0.4
Ol. eucalypti 0.5
Cocaine hydrochlor. 0.13
Ichthyol 2.00
Ol. theo brom q. s. ft. suppos. No. 12

Sig. Use one morning and evening in rectum.

After the operation a pad or antiseptic dressing is put on and kept moist with a solution of Epsom salts, two tablespoonfuls to 1 quart of boiled water with 1 teaspoonful of carbolic acid added. This moist antiseptic pad helps materially to reduce discomfort and also contributes to the healing process.

Few operations produce more gratifying results or demonstrate more clearly the value of surgery properly applied.

THE MEDICO-ECONOMIC MOVEMENT; ITS RECENT ORGANIZATION AND ACTIVITY.[1]

BY

OSCAR ROTTER, M. D.,
New York City.

I shall address you under the above title with a specific object in view. I intend to propose to this society a certain step which ought to be taken by it in the interest and furtherance of the medico-economic movement. To prove its desirability or necessity it will be appropriate to give first a systematic review of the whole movement including its organization and the practical activities since its inauguration.

When at its regular meeting of October 16, 1911, the Yorkville Medical Society independently and without knowledge of any other medical society similarly interested and engaged established a standing Committee on Economic Research, few of us thought, that within less than two years there would exist a mighty movement among physicians for the protection and promotion of their greatly menaced economic welfare, extending and spreading all over Greater New York. To have been from the very beginning a power in helping to bring about such a state of affairs, the Yorkville Medical Society may well be proud! In some respects we have failed in our medico-economic agitation but in the main we have succeeded in our efforts to initiate an organization of the medical

[1]Read before the Yorkville Medical Society, April 21st, 1913.

profession on an economic basis. In compliance with our program as laid down in the resolution, creating the Committee on Economic Research, we had sent out in September, 1912, appeals to 35 scientific Medical Societies in Greater New York, urging them to also establish Economic Committees, such committees to become allied forthwith into a permanent league for systematic purely economic work and agitation. The league thus conceived has not materialized. This goes to prove that in general the scientific medical societies, as such, are either unwilling or incompetent—or both—to represent and safeguard the economic interests of physicians. Yet the educational work and agitation for the organization of an inter-society Economic League as described, has not been in vain. Out of it have grown the following medico-economic policies in various circles, trying to remedy some of the evils under which we suffer as a profession.

I. A few months after the establishment of the Committee on Economic Research in the Yorkville Medical Society, the Medical Society of the County of New York, appointed a committee of 15 on hospital and dispensary abuses for the purpose of investigating such abuses and recommending ways and means to abolish them. The practical recommendations which were submitted by the committee and adopted by the New York County Medical Society at its stated meeting of February 24th, 1913 can be read in the printed report of said meeting.

II. In November, 1912, the Associated Out-Patient Clinics of the City of N. Y., an association of the Superintendents and Boards of Trustees of Hospitals was organized with a policy, which if conscientiously carried out, would tend to do away with the evils of dispensary abuses, so harmful to the physician in private practice.

III. In December, 1912, the American Society of Medical Economics was organized with planks in its platform, some of which are good as reform measures whilst others are objectionable from the view point of Medico-Economics.

All these efforts at reforms affecting the practice of medicine prove that the medical profession at last has been aroused from its slumber and suicidal indifference to its economic welfare. Yet one fact is certain: without a permanent economic organization of the rank and file of the medical profession in a Physicians' League or Union—democratically organized and run—any improvements that might be brought about by the agencies referred to above, would be only temporary. "Eternal vigilance is the price of liberty" and any kind of liberty ultimately rests upon an economic basis or sufficiency. There is therefore a necessity for two classes of medical societies, those devoted to the care and study of medical science and those devoted to the care and study of medical economics. The one object is as important to the physician as the other. Our experience in the past has proven, that the time and attention medical economics could receive in a scientific medical society, is not sufficient to adequately solve its problems which latter become even more serious and complex.

It thus gives me pleasure to state that this new type of medical societies—born of the necessities of the times—has sprung into existence. They are the Physicians' Economic Leagues, naming them in chronological order of their organization: The Medical Alliance of New York, the Brooklyn Physicians' Economic League, the Physicians' Economic League of Down Town, New York City, the Bronx Physiciens' League and last but not least the Physicians' Protective League of New

York. The combined membership of these leagues, which is steadily increasing every month, numbers about one thousand physicians to-day. The amount of work in the interest of the economic welfare of the physician, which is being done in regular monthly meetings and constantly in the various committee conferences, can be justly appreciated only by those who have taken an active part in the medico-economic movement at close range. If that most vicious and dangerous bill, known as the Seeley bill, entitled, "Proposed Act to Amend the Public Health Law Relative to Medical Licenses," now pending in the Assembly and Senate of New York State, should be defeated, as it deserves, it would be due mainly to the vigilance and activity of these Physicians' Economic Leagues, each of which has sent a delegate up to Albany to oppose its passage. The Yorkville Medical Society, true to the spirit embodied in its Committee on Economic Research, has joined them in this protest.

Now I come to speak of the suggestion which I wish to make in the name of your economic committee. I appeal to you that each and every member of the Yorkville Medical Society enroll as a member of a Physicians' Economic League in Manhattan. A number of us, including myself, are already members of the Physicians' Protective League of New York. Acting in the spirit of the resolution which created our Committee on Economic Research, members of this committee have ever been busy to get in touch with the several Physicians' Economic Leagues for the purpose of establishing a permanent Alliance between them for concerted action and cooperation. This Alliance of the Physicians' Economic Leagues, which is in the process of organization, will form a central body, composed of delegates from the various leagues, each league being represented by one delegate for every twenty-five of its members.

CORRESPONDENCE.

THE STANDARDIZATION OF DISINFECTANTS.

To the Editor
AMERICAN MEDICINE:

Allow me to call attention to a statement which appeared in the *Journal of the A. M. A.* in a report of the Council of Pharmacy and Chemistry—a statement which, if allowed to go unchallenged, might create a false impression.

Referring to the Hygienic Laboratory Method, the report states: "This method has been quite generally adopted in the United States, and is now used by the Federal Government in connection with the purchase of disinfectants." The first half of this statement is wholly incorrect, and as regards the second, I should like to point out that the only Federal authority calling for supplies of disinfectants to be controlled by the Hygienic Laboratory test is the General Supply Committee. As a matter of fact, the Federal authority charged with the administration of the act controlling the manufacture and sale of disinfectants—the Insecticide Board of the Department of Agriculture—has adopted the Rideal-Walker method.

It is not my intention to criticise the Hygienic Laboratory test at this time, but in view of the decision of the A. M. A. committee, I cannot refrain from reproducing the results of a number of recent determinations made by this test. The determinations in question were made on a certain bactericide which had been carefully examined by me and found to have a Rideal-Walker coefficient of 20. The results are as follows:

Investigator.—Prof. Pearson, Hahnemann College, Philadelphia; hygienic laboratory coefficient, 22.5.

Investigator.—J. T. Ainslie Walker, New York; hygienic laboratory coefficient, 22.0.

Investigator.—Dr. Steiner, State Health Officer, Texas; hygienic laboratory coefficient, 18.0.

Investigator.—Dr. Anderson's assistants, Hygienic Laboratory; hygienic laboratory coefficient, 16.6.

Investigator.—Prof. Prescott, Massachusetts College of Technology, Boston; hygienic laboratory coefficient, 12.2.

Your readers will, I am sure, agree with me, when I say that any test which is capable of yielding such absurd results is a little out of place in "The Propaganda for Reform"—the heading under which the A. M. A. committee's report appears.

The five so-called "objectionable features" of the Rideal-Walker test originally published by one of the members of the A. M. A.'s committee, are again served up, although on various occasions during the past year I have called attention to the fact that there is no justification whatever for this criticism, which, indeed, has been referred to by another worker as "most unfair and wholly misleading."[1]

As the work on which Dr. Rideal and I have collaborated during the past ten years has been so flagrantly misrepresented (for the third time in 12 months), I feel constrained to quote from my latest reply to this amazing criticism. The reply in question was published in the *New York Medical Journal* of February 1, 1913 and is as follows:

"In this country the Rideal-Walker test has been adopted by one state and several cities; that it is not more widely used I attribute to the misleading criticism to which it has been subjected by Dr. Anderson, whose indictment, published in the *Journal of Infectious Diseases*, contains the following five counts:

"1. Lack of simplicity in technic.

"2. Lack of definiteness in the proportion of culture added to the disinfectant.

"3. Extensive latitude allowed in the temperature of medication.

"4. Difficulty in manipulating the test tubes.

"5. Latitude allowed in determining the coefficient.

"With regard to 1, I may say that if there is any single feature which renders the Rideal-Walker test unique, it is its extreme simplicity, a fact which will be at once apparent to any unbiased worker.

"Professor Hewlett, of Kings College, London, the Milroy lecturer on Disinfection and Disinfectants, in referring to the test, said: 'I think that all those who have had anything to do with this Rideal-Walker test must agree as to the beautiful simplicity of the method.'

"2. Deals with what is termed 'lack of definiteness in the proportion of culture added to the disinfectant, a drop being a variable quantity.' No mention is made of the fact that this drop has for years past been standardized at 0.1 c. c. Reference to this fact will be found in Partridge's *Bacteriological Examination of Disinfectants*, published in 1907, also in Dr. Rideal's contribution to the proceedings of the British Pharmaceutical Congress held at Cambridge in 1910.

"That the 2 degrees' range of temperature, which is provided for in the test, and to which Dr. Anderson takes exception in 3, is not excessive, is shown by his own experiences giving results of tests conducted at 15 degrees to 25 degrees C. From these experiments it will be found that a rise of 2 degrees C. gives an advance in the coefficient of only 0.1, a figure which, it will be admitted, is well within the experimental error.

"The reply to 4 will be found in the answer to 1. At every stage of the test all manipulations are under the complete control of the worker.

"5. 'Latitude allowed in determining the coefficient' refers, I presume, to the interpretation of results. Three tables are set out—*with two phenols*, not one, as called for in the Rideal-Walker test—from which are taken ratios of the postulant and the control at 2½, 10 and 15 minutes, showing certain variations. The actual figures are 4.4; 5.5; and 5.0. I should like to point out what ought to have been within Dr. Anderson's knowledge, viz., that no such latitude is allowed in the Rideal-Walker test. Nowhere in the literature published in Europe or elsewhere will be found any test showing such latitude as Dr. Anderson suggests. Dr. Rideal and I have always contended that *time must be the constant*, and that if the phenol control shows life in 2½, and 5 minutes only, uniformly consistent results are obtained. At the International Congress of Hygiene and Demography as far back as 1907, Dr. Rideal referred to the desired result in the phenol control as 'life in 2½ and 5 minutes.' In an earlier paper by Sommerville and myself we emphasized the same point.[1]

After reciting the "five objectionable features" the A. M. A. committee, as a slight concession, remark: 'The first objection has been eliminated by some workers by arbitrarily limiting the determination of positive or negative result to a 2½ minute or 5 minute period"; but they add, "the other objections, however, still stand." That they stand in the opinion of this committee is only too obvious, but that they stand in the opinion of the unbiased workers of this country, remains to be seen.

As I have pointed out on more than one occasion, I have always found when inves-

[1] *The Medical Times*, October, 1912.

[1] *Public Health*, March, 1906.

tigating discrepancies in results obtained by the Rideal-Walker method, that one or more of the conditions called for in the test had been ignored. In the case of the *Lancet* commission, for instance, the explanation was found to lie principally in the fact that the commissioners had been working with broth prepared from bullocks heart, instead of the Rideal-Walker Liebig broth, which had the effect of depressing the coefficient by about fifty per cent. The "five objectionable features" would appear to account for the A. M. A. committee's want of success.

Yours truly,
J. T. AINSLIE WALKER.

A STEP TOWARD THE CONQUEST OF SMALLPOX.

LONDON, April 15, 1913.

To the Editor
AMERICAN MEDICINE:

I am permitted by Sir Almoth E. Wright to repeat some facts he gave me in a recent conversation. He has recently received information to the effect that the injection of anti-streptococcic and anti-staphylococcic vaccines in the early stages of smallpox prevents the later pus infections which are the real causes of death. Indeed the cases thus treated are so mild, even in those who have not acquired the slightest immunity against smallpox by Jennerian vaccine, that it is scarcely recognized as smallpox. Freed of its coincident pus infections, it might almost be called as benign a disease as chicken-pox, so slight is the suffering and so few are the deaths. He says that if this means of treatment had been known in Jenner's time the opposition to vaccination on the part of the medical profession might have prevented the adoption of the system of immunizing by a modified smallpox or vaccine. Smallpox might now be considered a curable disease with no after effects and possible of complete elimination. Moreover if an infant is first given a proper dose of the two vaccines, anti-streptococcic and anti-staphylococcic, and then given a Jennerian vaccination, the latter is entirely free of any signs of inflammation and gives no discomfort or at least a negligible one.

Finally, if calves are first immunized in this way against the staphylococcus pyogenes aureus and the streptococcus, they do not develop any signs of inflammation around the vaccinia vesicles, which, I understand, will dry up in the serous stage and not go on to the production of pus. Such lymph is practically free of pus organisms.

Perhaps all these facts have been reported in America, but in case they have not, I hasten to send the news in order that the matter may be tried out and if proved correct, be put to practical use at once.

It has long been known that vaccine which has been heated will cause a skin reaction but the experiments of von Pirquet and others now show that a sterile Jennerian vaccine will cause a skin reaction only in those already immunized to vaccinia, and this reaction may be mistaken for a successful vaccination or "take." It has also been found that if an unprotected person is vaccinated every day for eight days, the several inoculations are progressively more rapid in developing and all mature at the same time. The significance of this phenomenon is not quite clear unless it indicates a negative phase during which the system opposes less and less resistance to the invading organism of vaccinia.

As a side thought, it was suggested that when calves are first immunized against pus, the vaccinia subsequently given to them produces no discoverable suffering and so little inconvenience that the anti-vivisection cranks have positively nothing to complain of.

X. Y., M. D.

THE FRIEDMANN BACILLUS.

To the Editor
AMERICAN MEDICINE:

Why have the experts at Washington not informed us whether there is any truth in the claim made by Dr. Friedmann to the effect that his bacillus is avirulent? Dr. Theo. Wenning in a letter from Berlin, published in the *Lancet Clinic* of April 26th, declares that this bacillus is virulent.

If guinea pigs were inoculated intraperitoneally with the bacillus, at the end of 28 days this vital question would be settled. If the bacillus were virulent, typical tubercular lesions would appear on the

various organs; if the bacillus were avirulent no such lesions would be visible. In the former event, the fact should be published without loss of time, in the interests of humanity; in the latter, the same course should be adopted in common justice to Dr. Friedmann.

Have our experts at Washington carried out this simple test; if not, why not?

Yours truly,

M. D.

THE ANNOTATOR.

A Study of Mortality in 4,000 Feebleminded and Idiots.[1]—L. P. Clark and W. L. Stowell propose as the remedies for the causes which produce these unfortunates the following:

1. Segregation is the ideal remedy and does not run counter to any moral, religious, or social law or custom. The practical objection to it is its great expense since the state is already overburdened by taxation in caring for those who are at present its wards. It is doubtful whether the public would stand for the number of institutions necessary to carry out this plan. It would require ten times as many as are now in operation.

2. Sterilization of the individuals. An earnest campaign of education and proof of the harmlessness of the operation to those who are subjected to it will be essential if this plan is to be generally adopted and made adequate to the size and importance of the problem. The laws relating to this matter in the different states are now almost void in consequence of general distrust of the procedure. The writers believe in its effectiveness and that it works no harm to anybody.

3. The restriction of the marriage laws to prevent the mating of the unfit. As a matter of fact the unfit seldom invoke the right of marriage license to propagate. The scheme is Utopian and is of little interest to society at present. Love not only laughs at locksmiths, but gives little heed to social rules and customs which oppose its desires. Feeblemindedness being an incurable condition rather than a disease, is curtailed by nature as to its continuance. Every effort is being made at the present time to lengthen the life of the fit and the unfit. While the writers have no desire to turn back from this high plane they think that in the case of defectives we ought to make more genuine effort to prevent their continuance by segregation, sterilization and eugenics.

[1] *New York Medical Journal*, February 22, 1913.

Public Health, the Degree of D. P. H. and the Courses Offered by Medical Schools.[1]—W. G. Anderson notes the great importance of the abolishment of the public drinking cup in traveling conveyances and its influence in preventing the spread of disease. He notes also the work of the Committee of One Hundred, the efforts to pass the Owen bill, the space given to preventive medicine in the medical and lay press, the issuance of health bulletins by insurance companies, the demand for competent sanitarians, and the efforts of the medical schools to prepare specialists who may act as health officers. None of these plans stands out more prominently than the last and none holds out so great an inducement for the individual to enter a desirable field of employment.

In England the large universities offer courses in hygiene which lead to a degree known as the Diploma of Public Health; but not to a doctorate degree. The requirements are mainly those which are called the Cambridge tests which means that one who is registered in medicine, surgery and midwifery, may be a candidate after certain instruction in approved laboratories, in chemistry, bacteriology and the pathology of animals whose diseases are transmissible to human beings. He must spend nine calendar months in such study and then may appear for two examinations, the first having reference to the general principles of sanitary science and the second to state medicine and to the applications of pathology and sanitary science.

[1] *Medical Times*, March, 1913.

In this country one may obtain the degree of Doctor of Public Health or of Master of Science in Public Health. A degree of B. A. or its equivalent in addition to an M. D. is required in order to obtain the doctorate. The list of studies required is about the same at all the universities which confer this degree. It is conferred by Harvard, the University of Michigan, the University of Pennsylvania and the University of Wisconsin. A member of the faculty of the University of Pennsylvania recently stated that there was a good opening for every graduate from the Department of Preventive Medicine.

The Conservation of Child Life.[1]—An editorial states that during the year 1912 the general death rate of New York was reduced from 15.12 to 14.11 per cent. The rate for infants under one year was reduced from 111 to 105. In 1911 there were 15,033 deaths of babies under one year from all causes, while in 1912 the number was 14,289. The number of births increased by 1,081. If the number of deaths of babies had increased in the same proportion there would have been 120 more baby funerals in 1912 instead of 764 less than in 1911, so that 884 infant lives may be regarded as having been saved.

These figures are not ascribed as due to luck, weather conditions, etc., since the reduction in mortality has chiefly been in connection with the diarrheal, respiratory and contagious diseases which have been particular objects of attack. There is one potent factor which tends strongly to keep up infant mortality which has not, as yet, been adequately handled and that is ill health in pregnant women.

An attempt should therefore be made to combat as effectually as possible the prenatal influences and congenital factors which have a bearing upon infant mortality.

ETIOLOGY AND DIAGNOSIS.

Vertigo.[2]—Reed says that there are two conditions causing vertigo: one the integrity of the end-organs and the other paralysis of certain ocular muscles. While it is only a symptom its diagnostic significance is important. The indications in any case are to remove the underlying or essential cause and, when this is not apparent or the vertigo is reflex in origin, to use measures for the relief of the symptom. To judge as to the essential cause one must keep in mind a clear classification of the conditions that may produce it at different ages of the patient. In the child transient vertigo is often due to mechanical causes, but most commonly it is due to a middle-ear infection following the acute infectious fevers. It may also be due to anemia or malnutrition, and occasionally one must consider the possibility of brain abscess or cerebellar tumor. In early adult or middle life vertigo can most often be traced to a vascular or reflex source, such as some disorder of the digestive or genital organs, or to the arterial or myocardial changes. Ocular disturbances causing vertigo are also fairly frequent at these ages, and of course, mechanical or aural vertigoes may occur. With increasing age the vascular and certain types of reflex vertigo become more common. The vertigoes from reflex irritation are taken altogether, most commonly due to irritation in the digestive tract or the pelvis. In treating these a sharp purgative may be given, followed by stimulants and sedatives and such medicines as may affect favorably the trouble in the exciting organs. Neurotic vertigoes are somewhat similar to the reflex ones. They are common in neurasthenia and in certain degrees of nervous and emotional stress. Barany says that the vertigo of neurasthenia is characterized by irregular nystagmus, differing from the quick return of labyrinthine vertigo. Palliative treatment is secondary to thorough and persistent attack on the fundamental neurotic condition. Vertigo from purely vascular conditions or derangements, such as congestion, arterial sclerosis, anemia and other disturbances of the cerebral circulation, should be treated according to the vascular underlying condition. Toxic vertigo, as from alcohol or a nephritis, calls for a like management. Auditory vertigo may signify organic disease, and is due to disturbance of the function of the space sense of the eighth nerve. This may be due to slight causes, such as the sudden occlusion of the eustachian tube, deranging the pressure in the tympanic cavity. Of the two labyrinthine vertigo from organic disease is more serious, and Reed quotes somewhat at length from Carrison as to the symptoms and mechanism of these cases. Operative interference is seldom required in purely vestibular vertigo, but rest and quiet in bed are the prime needs. The second or paralytic type of vestibular vertigo following vestibular irritation, can be treated by progressive graded movements to reeducate the spatial sense of orientation. Meniere's disease is a term used to cover various forms of auditory vertigo with tinnitus and is always due to labyrinthine dis-

[1] *Medical Times*, March, 1913.
[2] Dr. A. C. Reed, *Jour A. M. A.*, May 17, 1913.

ease. Charcot's plan of giving increasing doses of quinin to cinchonism is recommended in this type and salicylate of soda is said to be a good substitute for quinin in such cases. Vertigo from the disturbance of the ocular arc is less frequent than reflex of aural vertigoes, and correction of the refractive error gives relief. Mechanical vertigoes, like sea-sickness, car-sickness etc., call for no special method of treatment. To relieve the symptom when the cause is not apparent, Reed recommends a purgative, rest, some volatile stimulant, and for internal administration sodium bromide 20 grains, three times a day, is probably the most satisfactory. A mustard plaster on the back of the neck, keeping the extremities warm and contra-irritation with weak mustard bath or hot water bags outside of the blanket and occasionally a slight cautery of the mastoid region may be useful.

Pernicious Vomiting of Pregnancy.[1]—Williams sums up his valuable paper as follows:—

1. The underlying factor in all cases of vomiting of pregnancy is probably an imperfect reaction on the part of the mother to the growing ovum.

2. In most cases this in only a predisposing cause; while a reflex or neurotic influence is the exciting factor, and cure usually follows its removal.

3. Williams still holds to the classification of reflex, neurotic and toxemic vomiting. Of these the neurotic is the most and the reflex the least frequent type, while the toxemic is the most serious.

4. Pronounced toxemic vomiting is accompanied by characteristic lesions and profound changes in metabolism.

5. The significance of a high ammonia coefficient is not specific. It may be a manifestation of toxemic vomiting, of starvation following neurotic vomiting, or of an acidosis due to various causes.

6. It should be regarded merely as a danger signal, while the differentiation between the various types is possible only after careful clinical observation. If improvement does not promptly follow appropriate treatment, the existence of toxemic vomiting should be assumed and abortion promptly induced.

7. In the absence of genital lesions, a low ammonia coefficient indicates neurotic vomiting, which can be cured by suggestion and dietetic treatment, no matter how ill the patient may appear.

8. In primiparous women vaginal hysterctomy is the most conservative method of emptying the uterus. Nitrous oxide gas or ether should be used in preference to chloroform for anesthesia.

[1]W. L. Williams, F. R. C. P., *Glascow Med. Jour*, Mar. 1913.

TREATMENT.

Treatment of Confirmed Cases of High Blood Pressure.[1]—A. Mantle quotes Oliver as follows: "The fact should be emphasized that supernormal arterial pressure is not itself a primary condition to be attacked or controlled as such. It is invariably a result of some pathological cause or causes, and it is, moreover, often a necessary evil the result of conditions we cannot remove, and then it must be looked upon as a compensatory effort, as one of the natural defences of the body." The author proposes the question: How is one to determine the true position of a case of supernormal pressure? There are two dangers: with one eye one sees visions of a possible catastrophe through the rupture of a weak vessel by doing too little, and with the other the danger of doing too much in lowering the pressure and weakening the cardiac force. The author's reply to the above question is as follows: One should take a careful history of the case and observe the condition of the cardiovascular, the renal, and the alimentary systems, and try to find out the cause of the high pressure, such as errors in diet, alcohol, syphilis, lead, and excessive worry, remembering that supernormal pressure is not a disease *per se*, but a symptom only. If the left ventricle is hypertrophied, it suggests that the pressure has been persistently high for some months or years. Experience teaches us that with a restriction of red meats and alcoholic drinks from the dietary of those who take them freely the pressure, if not a permanently high one, usually diminishes and this argues that purin bodies and alcohol probably act as vasoconstrictors. Waste is constantly going on in the body, and it is important to get rid of the products of waste whatever they may be. The proof of the splanchnic vessels being some of the earliest to become affected in arteriosclerosis suggests that one should relieve the congestion of the visceral vessels, which can be done by judicious purgation. One-gram doses of calomel and saline purgatives are most useful two or three times a week. One of the greatest outlets for waste products is the skin, and when inactive a free action of this organ must be encouraged by artificial means, such as by massage-douche and Nauheim baths, when these can be obtained, and intestinal lavation is also very desirable in cases with constipation. It is a common observation that with a dilated periphery causing an active skin there is a lower range of blood pressure, which leads one to suggest to those who can afford it to follow the sun. If in spite of all régime and treatment the pressure continues high after the case has been watched carefully for some months, one concludes that this is a case in which the pressure is permanently supernormal. In any event the general régime should be continued, and as long as no urgent symptoms arise the

[1]A. Mantle, F. R. C. P., *Lancet*, May 3, 1913.

patient may do his work in life if he avoids excitement and sudden strain. Lastly, one must not use any active means to reduce the pressure, remembering that it is probably an advantage and necessary that the pressure should be high for the maintenance of an adequate supply of blood to vital organs. As for drugs of the vasodilator type, the nitrite group, I use them very little except in emergencies, for the author believes it is sounder treatment to get rid of the bodies in the system which contract the periphery by the means he has mentioned, rather than by dilating the blood-vessels with the offending poisons still intact. He gives iodides very carefully, if at all, but if there is any syphilitic history they may be pushed.

Puerperal Eclampsia.[1]—Two methods of treatment of puerperal eclampsia according to Gibbons, deserve to be mentioned, because in the hands of some they seem to have been efficacious. One is the therapeutic employment of normal serum from pregnant women, as carried out by Mayer (Tübingen) and the other is the use of large doses of thyroid. Gibbon refers to Nicholson, who considers that thyroid extract is the ideal vaso-dilator in cases of eclampsia, but that it is necessary to use large doses; 30 to 40 grains are given at first, and a second dose of 20 or 30 grains in six or eight hours if there should be no improvement. He considers that the noteworthy points in relation to this treatment are the unusually early reestablishment of the renal functions and the rapid and complete disappearance of symptoms. He believes that normally thyroid secretion is the opposing influence which safeguards renal circulation from a dangerous overaction of the internal secretion of the suprarenals, which acts as a constrictor of the arteries and capillaries.

The best results, the writer goes on, will come to those who regard this, in the light of present knowledge, as a poison in the blood acting on the nerve centers; and as treatment of all poisons is by an antidote when the poison is known, and by elimination, and, failing this, dilution when the poison is unknown, so the simplest way of regarding a patient suffering from puerperal eclampsia is as one suddenly poisoned, and treat her accordingly. Therefore anything which will, in any degree whatever, strengthen the defensive forces of the body, will do good. Gibbons' belief is that venesection, combined with the endeavor to eliminate the poison, and dilution with saline transfusion will be of most service.

But there are many cases, says the author, in which no treatment is of any avail, and which are mortally ill from the moment of the first convulsion. There are others, again, which are not so seriously affected, although this can never be known at first, and therefore they are the ones which may recover under any treatment whatever, and are the cases in which one is apt to have an exaggerated idea of the importance of any special line of treatment if it happens to be successful. If the temperature be steadily rising, the patient comatose, with a rapid pulse, tending to be more frequent and thready, a tepid bath may be given if this is possible. The patient may be put into a warm bath, which is gradually cooled down to 80 F. or lower, and allowed to remain in for twenty minutes. This doubtless acts in the same way as it does in serious cases of typhoid or acute rheumatism.

Recent statistics show that the best treatment is that of rapidly emptying the uterus—by whatever means this may be most safely accomplished—after the first few convulsions; that is to say, without indefinite delay. The woman and the child are thereby given the best chance of life, and, the maternal mortality has been lowered in the hands of some to under 5 per cent. The greater the delay in carrying out this treatment after the onset of the first convulsion, the greater will be the danger.

[1]R. A. Gibbons, F. R. C. S., *British Med. Jour.*, April 26, per *Jour. A. M. A.*

HYGIENE AND DIETETICS.

A Recent Analysis of Asparagus.[1]—The popularity of asparagus makes a fresh analysis of it interesting. When we remember that asparagus belongs to the same family of plants—the liliaceæ—as do the garlic, leek, and onion, we may expect to find some constituents in common. Sulphur combined in the form of an oil is perhaps the most prominent of these, but in asparagus it is not so obvious to the taste and smell as it is in the raw onion. Curiously enough, however, when the tender shoots of asparagus are left in water for a few days we find that the smell of onions quickly develops and after a time becomes very marked. Again, if asparagus is extracted with ether an oil is obtained which has a faint smell of the raw shoot. This oil, on analysis, proves to contain sulphur. It is probably this sulphur constituent which gives the well-known peculiar odour to the kidney excretion after a diet of asparagus, and not the other principle peculiar to asparagus, asparagin. There is reason for believing, however, that asparagin has decidedly diuretic properties. According to our analysis it occurs in the tender shoots to the extent of about 0.5 per cent. As to the actual nutritive value of asparagus, this must be placed low, especially in

[1]Editorial *Lond. Lancet*, May 3, 1913.

view of the fact that what nutritives exist in the plant are rapidly extracted by boiling and even by cold water. Approximately only a tenth part of the raw asparagus shoot is solid matter, and as much as 70 per cent. of this is soluble in cold water, while quite 80 per cent. is soluble in boiling water. It follows that in the process of cooking a very considerable quantity of the raw material is left behind in the water in which it has been boiled. Since the constituents so taken out consist of sugars, gums, proteins, and practically all the phosphatic salts, there is much to be said in favour of the nutritive quality of asparagus soup if in its preparation the boiled liquor is utilised. The sugar in asparagus amounts to an average of 3.6 per cent., the proteins (calculated on total nitrogen) to 3.8 per cent., the fibre to 1 per cent., and the mineral matter to 0.80 per cent. The green variety contains much less fibre than the white, and the green also yields more soluble matter to boiling, and still more to cold, water than the fat white stick. An important constituent, again, of the tender shoot of asparagus is the basic body vitamine. This occurs in the growing tips of all vegetables, but particularly so in that of asparagus. To sum up, the nutritive value of asparagus in the form in which it is invariably consumed—viz., after boiling 20 minutes—is too small to be of any importance, and its use to the exclusion of other elements would mean a starvation diet. All that can be claimed for it is that it is a particularly pleasing adjunct to the meal, and palatability, we know, is an undoubted assistance to the processes of nutrition.

GENERAL TOPICS.

Stains and How to Remove Them.[1]—An article in the *Nursing Times* gives the following practical information on removing stains:

Iodine—This can easily be removed by soaking it in cold water, then covering the stained part with a little powdered starch moistened with water. Spread the paste on the stain, leave it until dry and then wash in the usual way.

Medicine, such as an iron tonic—Pour a stream of boiling water over the stain, then with a bone spoon apply a little salts of lemon, rubbing it gently with the back of the spoon; pour on more boiling water and the iron stain will have disappeared. Dip the part of material from which the stain has been removed in a little water (about a cupful) containing half a teaspoonful of dissolved carbonate of soda. This is to neutralize the acid, thus rendering the effect of it quite harmless to the fabric.

Any specially difficult stains due to very strong medicine or coloring matter, which cannot be taken out by the simple, quick means, can always be removed with permanganate of potash and sulphuric acid. *To use these*—put a little permanganate of potash solution in a glass and a *weak* solution of sulphuric acid (can be bought ready for use at any chemist's) in another one, and then place the stained article in the permanganate of potash and leave it a few minutes, and this will dissolve the stain; then remove the discoloration by putting it into the sulphuric acid, and if necessary repeat the process until the mark is gone.

For wine stain—While wet place a paste of powdered starch (starch and cold water mixed together) on it and leave for some time (an hour or two), then rub it off and the mark will have nearly gone. Finish by washing and boiling, or, if preferred, use lemon juice and common salt. Moisten the stain with the juice, apply some salt and rub with a bone spoon, using more juice if necessary, then wash in the usual way. If these simple methods fail, a weak solution of chloride of lime is always quickly successful. It can be bought in liquid form at the oil shop. Use it in the proportion of a teaspoonful to half pint of *cold* water. As an antidote to this strong alkali, rinse the material very thoroughly in cold water. Never use chloride of lime for colored articles, or silk, as it turns white silk bright yellow, which discoloration can never be removed.

Wet ink stains—Rub with a piece of ripe tomato and then rinse well in cold water; wash and boil, or put a litle red ink on the mark and wash; the acid dissolves the iron in the ink and sets free the tannin or coloring matter, which will boil out.

Tea, coffee, or cocoa—Borax is best. Pour boiling water through the stain, while it is wet, if possible, place some powdered borax on and pour on more water, then wash, boil and dry in the sunshine. Sunshine seldom fails in removing such stains as tea, coffee or scorch marks.

Bloodstains—These should be soaked in salt and water for some hours, then wring out and rub in a fresh supply of salt and water. Next wash in the ordinary way, with soap and warm water, boil, rinse and dry in sunshine.

[1]The *Nursing Times*, Jan., 1913.

SOCIETY PROCEEDINGS.

The Fourth International Congress on School Hygiene, and the first to be held in America, at Buffalo, August 25-30, according to an announcement of the executive committee, will be by far the most elaborate effort yet made in this country toward getting the problem of school hygiene before the world. The first International Congress was held at Nuremburg in 1904, and the second at London in 1907, the third at Paris in 1910.

The objects of the Buffalo Congress are:

(1) To bring together men and women interested in the health of school children.

(2) To organize a program of papers and discussions covering the field of school hygiene.

(3) To assemble a school exhibit representing the best that is being done in school hygiene.

(4) To secure a commercial exhibit of practical and educational value to school people.

(5) To publish the proceedings of this Congress and distribute them to each member.

In addition there is a plan on foot to effect a permanent organization for the purpose of carrying out school hygiene reforms in all the individual communities in this country, if not all over the world.

One of the interesting features of the Congress will be the presence of delegates representing the community interest in school hygiene, including those appointed by mayors and governors, by women's clubs, by school boards, boards of health, by mothers' congresses and charity organization societies and boards of trade. Their help is being solicited with a view of organizing the community in a campaign of school hygiene reform.

The program committee announces a program of two hundred and fifty papers and fifteen symposiums, taking up hygiene from the following points of view:

I. The hygiene of school buildings, grounds, material and upkeep.

II. The hygiene of school administration and schedule.

III. Medical, hygienic and sanitary supervision in schools.

The contributors to the program make up a notable list of speakers, college presidents and professors; state, city and county commissioners of education; teachers and superintendents of public schools; medical college professors, state, county and city health officers; physicians in private practice; engineers and architects.

Special discussions are being arranged on the following subjects:

"School Feeding," arranged by the Committee on School Feeding of the American Home Economics Society; "Oral Hygiene," arranged by National Mouth Hygiene Association; "Sex Hygiene," arranged by the American Federation of Sex Hygiene; "Conservation of Vision in School Children," arranged by the Society for the Prevention of Blindness; "Health Supervision of University Students," arranged by Dr. Mazyck P. Ravenel, University of Wisconsin; "School Illumination," arranged by the Society of Illuminating Engineers; "Relation Between Physical Education and School Hygiene," arranged by the American Physical Education Association; "Tuberculosis Among School Children," arranged by the Society for the Prevention of Tuberculosis; "Physical Education and College Hygiene," arranged by the Society of Directors of Physical Education in Colleges; "The Binet-Simon Test," arranged by Professor Terman, Stanford University; "The Mentally Defective Child," arranged by Dr. Henry H. Goddard, Vineland, N. J.

Various citizens' committees of Buffalo are arranging an elaborate entertainment for the benefit of visiting delegates. There will be receptions and a grand ball, a pageant of school children, and excursion trips to the great industrial plants of Buffalo, and to the scenic wonders of Niagara Falls. The Boy Scouts will act as official guides.

Delegates will attend from every college and university of note in this country, from other leading educational and hygienic institutions and organizations, and from every country in which an active interest is being shown in the welfare of school children, which includes all the leading nations of the world.

The Congress is open to all persons interested in school hygiene upon the payment of a fee of five dollars. Application for membership should be sent to Dr. Thomas A. Storey, College of the City of New York, New York City.

President Wilson has accepted the honorary office of patron of the Congress. The president of the Congress is Mr. Charles W. Eliot, of Harvard University. The vice-presidents are Dr. William H. Welch, of Johns Hopkins University, and Dr. Henry P. Walcott, president of the recent International Congress on School Hygiene and Demography, and chairman of the Massachusetts State Board of Health.

THE EASTERN MEDICAL SOCIETY

The regular stated meeting was held May 9th, 1913, at the Café Boulevard. Following was the program:—

EXECUTIVE SESSION.

Routine business was transacted at the Executive Session.

SCIENTIFIC SESSION.

A. *Presentation of Cases.*

A Case of Myxedema and Diabetes Insipidus.

Dr. B. Goldstein.

B. *Papers.*

1. Types of Cardiac Diseases in Which the Diagnosis is Facilitated by use Electrocardiagram.

   Dr. H. B. Williams.

2. Heart Types as seen by the Orthodiascope.

   Dr. Harry Wessler.

3. The Right Auricle in Auricular Fibrillation.

   Dr. Bernard Sutro Oppenheimer.

4. Diagnosis and Treatment of Syphilitic Aortitis.

   Dr. W. T. Longcope.

The papers were discussed by Drs. I. Adler, Louis Faugeres Bishop, Selian Neuhof and B. Rosenbluth.

At eleven o'clock a memorial service was held as a mark of respect to Dr. Archibald E. Isaacs. The Memorial Address was delivered by Dr. I. Seth Hirsch.

The Society then adjourned.

ABRAHAM JACOBI

Physician Teacher Philosopher

A man so pure of heart and clean of mind, that to know him is to love him; a physician whose life has been signally devoted to the service of suffering humanity—especially the care and treatment of little children; a teacher whose knowledge, optimism and wholesome character have been a constant source of inspiration to those who have looked to him for guidance; a philosopher whose sound and homely logic has brought understanding and peace to many who have felt the despair of doubt and fear.

To this man this issue of American Medicine is respectfully and affectionately dedicated.

May it serve to show in some slight degree the love and esteem that fills the hearts of those who have learned the measure of his sympathy and the quality of his friendship.

H. E. L.

327

American Medicine

H. EDWIN LEWIS, M. D., *Managing Editor.*
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.
Copyrighted by the American Medical Publishing Co., 1913.

Complete Series, Vol. XIX, No. 6.
New Series, Vol. VIII, No. 6. JUNE, 1913. $1.00 YEARLY in advance.

DR. A. JACOBI.

AN APPRECIATION.

He who can truthfully say: *Homo sum et nihil humani a me alienum puto,* is a man indeed. Dr. Abraham Jacobi is such a man.

At the very beginning of his remarkable career he became imbued with the fruitful idea that the prescribing of pills, potions and powders for ailing humanity, important an occupation as it was, was not the *sole* office of the modern physician. That great and noble as the cure of disease and alleviation of pain were, the prevention of disease—the removal of conditions which breed disease—was greater and nobler still. And from the very beginning he refused to be a physician merely, he claimed the right to be a sanitarian, the privilege to be a public spirited citizen and to make his voice heard on all questions of importance to the community.

I have given my appreciation of Jacobi on another occasion, and because it seems so much apropos, I pray to be permitted to reproduce from that appreciation a paragraph or two.

I know of no other man, either among the living or among those who have passed on, who in our country has had such an important influence on the development of medicine in all its phases, as has Dr. Abraham Jacobi, of New York. The adjective important is, however, not adequate nor quite satisfactory. An influence may be important, and yet not beneficial; or it may be only partially beneficial, and it is sometimes a vexed problem to determine whether a man's influence has been more beneficial than harmful, or *vice versa.* No such problem confronts us in estimating the activity of Dr. Jacobi. For his influence has been *wholly* for the good, for the highest good both of the profession and of humanity. Bear this last word in mind. For great as Dr. Jacobi is as a physician, great as a teacher, great as an investigator, he is equally great as a humanitarian. Not here is the place, nor is mine the ability to speak of Dr. Jacobi's services to medicine proper; of his services to pediatrics; of the debt the little children the world over owe and forever will owe him; of the thousands of lives that he has saved personally; nor will I dilate here upon the indebtedness the profession owes him for holding aloft and lighting its path with the torch of therapeutic optimism in

the midst of the stark darkness of therapeutic pessimism and despair; nor will I speak here of his services in having brought American and European medicine closer together, his services in making us—those of us who deserve to be respected—respected abroad. What I want to allude to here is Jacobi, the physician-man. He belongs to the noble few who many years ago perceived that many diseases had a social-economic basis, and that if we wanted to do any good we had to improve the economic and sanitary conditions of the people. And this he preached at every opportunity—even when his preaching was not welcome. He belongs to the noble few who regard the physician's role as something more than that of a reliever of aches and pains—he perceived the role of the physician to be that of a teacher, an adviser, a sanitarian, a preventer, a critic, a guide. And while he has sometimes been a severe critic, he has *always* been willing and ready to act as a guide. And his guidance has always been a safe and reliable one.

What attracted me to Dr. Jacobi long before I had the pleasure of his personal acquaintance was his sturdy honesty, his rugged fearlessness, which one could readily feel in his public speeches and addresses. He never missed an occasion to inculcate a wholesome lesson. And he was never afraid of his audience. Where another person would pour out fulsome, cloying praise, he would offer healthy criticism; where another person would dispense nothing but taffy, Dr. Jacobi would present a good dose of Epsom Salt; to dispense *undeserved* flattery has always been as distasteful to him as to receive it. And if his audience did not like some of the wholesome but bitter truths that he gave them, why, he just let them dislike them.

Of Jacobi personally, Jacobi the friend, I should like to say a good deal, for there is a good deal to be said. But this is perhaps not the most appropriate place, and so my remarks shall be few and brief. To know Dr. Jacobi at close range is a rare privilege. His never-failing optimism, his cheery presence, his ready wit, his practical advice have helped many a professional brother, whom circumstances were pushing into the slough of despond, to raise his head and look again into the future with courage and hope. To me personally Dr. Jacobi's friendship has been an inexhaustible fountain of inspiration and delight. And his never failing encouragement of young men who have shown talent and an earnest interest in their work has done a good deal towards enriching the profession with sincere and capable workers. For the faker, however, and loud but empty self-seeker, he has had nothing but scorn, and he has not hesitated to show his scorn in a manner that bit and stung. And for this reason the number of his enemies is not insignificant. But what strong, militant, and sturdily honest personality has not made enemies?

Long may Dr. Jacobi live. We love him both for the friends and the enemies he has made.

In conclusion, I wish to thank the EDITOR of AMERICAN MEDICINE for his courtesy in requesting me to write a few introductory remarks to this issue, which is to be a sort of Festschrift in honor of the man we all love, in honor of the man who so well fulfills Nothnagel's dictum, that only a good man can be a good physician. I consider it a high privilege for which I am duly grateful.

WILLIAM J. ROBINSON.

The origin and development of pediatrics. The study of and treatment of the diseases and affections of infants and children, and the care of the same, originated as a specialty—although it is not a specialty in the ordinary acceptance of the term—but a comparatively short time ago. It is true that literature dealing with infantile diseases is extant which was produced centuries ago but when this was written the treatment of the diseases of infants and children was but a part of the practice of the general practitioner. Of course, all specialties are of modern origin, and pediatrics, if it may be termed a specialty, does not go back many years.

As the history of pediatrics is interesting to those who concern themselves solely or mostly with the diseases of infants and children, it will not be out of place to give a short and somewhat inadequate sketch of the rise and development of this specialty. Homer mentioned physicians and surgeons on several occasions in his writings, and in the *Odyssey* he refers to the confinement of the wife of Sthenelus with a seven months child. Hesoid alludes to nymphomania, and Herodotus discusses the viability of a fetus of seven months. Aristotle, who, of all the Greek writers, treats of medical subjects the most, discussing the cause of convulsions in infants, lays the blame on overfeeding, saying that they take more milk than necessary, or a too thin milk.

In making a necessarily somewhat cursory survey of the origin and rise of pediatrics, manifestly the only means of arriving at a tolerably correct estimate of the subject is by the medium of the literature thereon. According to Dr. Abraham Jacobi, AMERICAN MEDICINE, Nov. 5, 1904, in the fifteenth century two monographs were published on children's diseases; in the sixteenth century, sixteen monographs were published; in the seventeenth century twenty-one; in the eighteenth century, seventy-five. The two oldest works on children's diseases published in Europe were *"de aegritudinibus puerorum"* by P. Bagellardus in 1487, and "Ein vast Nützlich Regiment der jungen Kinder" by Bartholomeus Metlinger of Augsburg in 1478.

Up to the time of Jenner, many treatises treating of pediatrics were issued in Europe and Great Britain. In 1798 Edward Jenner published in the form of a treatise an account of his immortal discovery "an inquiry into the causes of the variolae vaccinae" the foundation upon which the modern theory and practice of vaccine therapy is based. In this country in 1789, Rush discussed in print the peculiar manner in which disease affects children, and in sequence, came communications by Caldwell in 1796. Stuart in 1806; Jackson in 1812; Miller in 1814; Logan in 1825; Dewees in 1825; Parish in 1826; Flint in 1826; Page in 1829; Horner in 1829; Eberle in 1833; Reynolds in 1833; Gerhard in 1833; Jackson in 1833; Lewis in 1837; Stewart in 1843; Condie in 1847; Meigs in 1850; Watson in 1853; Jacobi and Smith in 1868; O'Dwyer in 1879, and in yet more recent years, Keating, Starr, Sachs, Rotch, Holt, Rachford, Koplik, Chapin, Freeman, Kerr, Fischer, Pisek, Sheffield and others, have all written on the diseases and treatment of infants and children.

In 1860 the New York Medical College in East Thirtieth Street established a special clinic for the diseases of the young. On the outbreak of the Civil War the Col-

lege was compelled to close its doors, and in 1865 the clinic was transferred to the University Medical College, and in 1870 it was transferred to the College of Physicians and Surgeons. In the meantime other medical schools in various parts of the continent followed the example. However, although in no country of the world is pediatrics practiced as a specialty more widely and more assiduously than in America, and in no country are men engaged in this branch of medical practice more active and able than here, it is somewhat curious to note that children's hospitals have not flourished to the extent that they have flourished in some other lands.

But before going into the question of children's hospitals, it may be as well to continue the recapitulation of some of the literature bearing on infants' and children's diseases and treatment. In England, in 1801, Cheyne's Essays on Diseases of Children were published. In 1828 France, which at that time was preeminent in medical literature, produced at the hands of C. Billard *"Traité des Maladies des Enfants Nouveau Nés,"* and in 1835 Rilliet and Barthez issued their *"Traité Clinique et Practique des Maladies des Enfants."* Both these were remarkably able works. In 1845 Charles West's classical Lectures on Diseases of Infants and Children saw the light in England, and in the same country F. Churchill's treatise was published in 1850. Bednar's "Die Krankheiten der Neugeborneü und Säuglinge" came out in Germany from 1850-53. Several Cyclopedias have also been published dealing exclusively with children's diseases, while the mass of periodical literature on pediatrics is simply enormous.

Of journals devoted to the consideration of the diseases and to the care of children, there are in Germany five, in France three, in Great Britain two, in Italy two, in Spain one, and in this country four strictly medical publications.

In May, 1868, the American Journal of Obstetrics and Pediatrics was founded and it is a matter of interest that the leading article in the first number of this journal was written by Dr. Jacobi. Dr. William Percy Watson established the Archives of Pediatrics in 1884 and in 1895 Dr. Dillon Brown established Pediatrics. The American Journal of Diseases of Children was founded in 1911 under the auspices of the American Medical Association.

Thirty-four years ago the American Medical Association and the British Medical Association founded sections of diseases of children and academies of medicine in some of the large cities of this continent have followed suit.

In referring again to the establishment of institutions specially provided for sick children, it may be stated that there are few large children's hospitals in the United States, but most of the large general hospitals have special departments for children.

Before 1769 there was no institution specially provided for sick children in any country. In that year Dr. G. Armstrong founded a children's dispensary in London. A similar institution was established in Vienna in 1784, and is still in existence. It was during the first French Republic that the first and largest child's hospital was founded in Europe in 1802. The Nicolai Hospital was founded in St. Petersburg in 1834; St. Anne's Hospital in Vienna in 1837 and the Poor Children's Hospital in Budapest in 1839.

Great Britain and her dominions are well supplied with children's hospitals, the

largest of which is in Great Ormond St., London, and contains about 250 beds; there are four or five other good sized ones in London; Manchester has a children's hospital with 168 beds; Edinburgh one with 120 beds, and Glasgow a children's hospital with 76 beds. All the large cities of Great Britain have children's hospitals.

In Sydney, Australia, is a children's hospital with 150 beds. Brisbane and Melbourne have institutions of this character containing more than 120 beds. Perhaps, however, the best built and equipped children's hospital of the world is that in Toronto. At the present time it contains 200 beds but with an addition now being built, its capacity will be in the neighborhood of 250 beds.

Germany has a large number of children's hospitals; France fewer, while Austria, Russia, Italy, Belgium, and the Scandinavian countries all contain such institutions.

The progress of pediatrics has been rapid—especially rapid—within the last twenty-five years. Probably, from the strictly scientific standpoint, Germany leads; and perhaps Great Britain is in front so far as practical treatment is concerned, that is, from the clinical point of view; while this country from many aspects is well abreast of any. However, the relative progress in pediatrics in different countries is largely a matter of opinion and the satisfactory fact remains that great progress has been made and is being made everywhere. Despite the fact that great advance has been recorded in this particular branch of medicine, it must yet be said that all English speaking countries lag behind in the teaching of pediatrics. Most of the large and small universities of Europe have their chairs of the diseases of children. This is the case in France, Italy, Germany, Austria and Sweden. It is in the prevention of children's diseases and especially in the prevention of infant mortality, that the most progress has been effected. The death rate of infants has been decreased in every civilized land, and this fortunate state of affairs may be attributed to the better methods now in vogue for rearing infants. Mothers of the poorer class are taught by the medical officers, trained nurses and visitors of the extraordinarily efficient boards of health how and when to feed and how to care for their infants. The imparting of this knowledge and the practical application thereof has created a revolution in the upbringing of children and the New York Board of Health may take a good deal of credit for pointing the way and setting the pace in this direction.

With regard to scientific artificial infant feeding, physicians of this country have little or nothing to learn from those of other lands—indeed in many respects they have been pioneers. France and Belgium have blazed the trail which has led to the saving of the lives—and physical and mental regeneration—of countless numbers of slum infants and children by the establishment of Les Gouttes de Lait and similar systems, which have been adopted, and in some instances improved upon in Great Britain. In the treatment of the diseases of children great progress has also been made. For this improvement, much is owing to scientific research, concerning which it may be said that only a beginning has been made. Indeed, the outlook for pediatrics is extremely bright from whatever aspect it is regarded. It is obvious that there should be medical men who devote their time to the study and treatment

of the diseases of infants and children, and to their prevention. After all, such diseases require special study for the reasons that anomalies and diseases are met with in the young that do not occur in adult life, and that the diseases which are common to adults and children manifest themselves differently in the latter. The prevention of infant mortality and the rearing of a healthy stock is a matter so vital to the race and nation.

Therefore, while the growth of pediatrics has been remarkable during the past twenty-five years it is especially gratifying to note that its future promises to be even more fruitful of results than the past.

Infant mortality seems to be the most important problem confronting modern medicine. Even in Germany where a paternal form of government has forced an exceedingly high form of sanitation upon the people, the death rate of infants under one year of age has alarmingly increased, and has actually raised the general death rate in spite of the fewer infants born, and the lessened death rate of adults. The conditions are not nearly as bad as they were fifty or one hundred years ago, but are causing alarm among laymen, as we had confidently predicted a lessening death rate of infants. We certainly do know more about raising a baby on modified milk than we did twenty years ago; indeed, under proper management, a bottle fed infant may have a better chance than one whose mother's milk disagrees with it. The science of feeding is a real science, which is accomplishing wonders, although it cannot possibly imitate mother's milk exactly, and perhaps never will. The trouble seems to be the increasing number of women of the poorer classes who are unable to nurse their children, and also unable to buy and prepare proper food. It is one of the evils resulting from the urbanization of the populations of civilized countries. The mothers and grand-mothers of these milkless modern city dwellers, lived in small villages or the country, in a wholesome existence, and were amply able to nourish their children. One generation in the city may cause a remarkable change. As far as we know this deterioration can not be prevented in the case of types which have always lived in open spaces. There are types to be sure which have become adapted to city life, but it has been at the expense of a dreadful mortality in the past, for the fittest have been very few.

Blond unfitness for city life has been frequently mentioned in these columns, hoping that American physicians would make observations on the comparative sick rates of blond and brunette city children, with a view of determining the causes of the higher mortality of blonds, which makes all cities of the civilized world much more brunette than the surrounding country. This phenomenon is said to have no exceptions. Even Glasgow has a very large brunette element, in spite of the great blondness of the Scotch countrymen. Some factors kill off the blondest of those who migrate from the country to the city. The effect is seen mostly in the children. The survivors of this selection being saved from many of the adverse factors of country life, are said to live longer than the rural population, at least that is the interpretation of the most recent vital statistics. American physicians have had grand opportunities for making observations in this line, but

have sadly neglected them. The work is being done in Europe. The latest writer is Dr. J. T. Mackintosh of London, whose most recent article was published in the *Clinical Journal* of Aug. 9, 1911. He shows that the blond Baltic type which invaded England 1500 years ago, or more, is healthy and vigorous as long as it remains in the country, but becomes nervous, and deteriorates after one generation in London. He has been able to make the diagnosis in some children which had baffled other physicians. Nothing but removal from the city will cure these little ones, and permit them to grow into healthy men and women. At the same time, it is not unlikely that if we discover the causes in greater detail, we may be able to make some cures without removal from the city. All this has a direct bearing upon the increasing number of women who are unable to nurse their children, and we cannot afford to neglect racial types of our patients any longer.

The medical effects of urbanization have not hitherto been realized, as it is a comparatively recent phenomenon. A hundred years ago there were but two or three cities in the civilized world, and they were really more like large villages with plenty of open spaces. It was only when the industrial era began, that people had to cluster together in order to be near their factories. Every farming invention released a certain number of laborers, who then migrated to town for work, consequently the cities grew with each increase of food production by labor saving machinery. More than half the people must now live in town, and a tremendous evolution is going on to adapt this part of the human race to its new environment. Unless we can preserve the unfittest by building up an environment within an environment, they must decay and eventually perish, leaving the field to those who have proved their fitness by centuries of survival, such as the Ghetto hebrews of Europe. The blond type in many places is being elbowed out of the factories of Europe, and if it invades the city, the women are unable to nurse their infants, and the children grow up weak and nervous, with bodily defects interfering with the struggle for existence. The Germans are learning that something beyond the sphere of sanitation is raising their death rate, and it would be well for them to heed the warning of Dr. Mackintosh. We, in America have a double cause for city mortality, as we have the added effects of climates so different from those of our ancestors. Mackintosh, by the way, finds that the blond type cannot exist in a very moist climate, such spots in the British Islands and northern Europe generally, being inhabited by brunette races. This may explain some curious phenomena found in the wettest parts of the United States. Although the blond needs less moisure, he is damaged by the sunlight which goes with extreme dryness. His fitness for open spaces and inability to live in crowds has no anatomical explanation as yet, but the fact cannot be denied, and clears up a good deal of pathology. We hope American physicians will now take up the matter seriously and not permit Europeans to get all the renown from cultivating this new field.

The evolution of a city type is therefore dependent upon the destruction of those who cannot live in crowds. It may be taken for granted that

it will be a long time before we can produce perfect food for infants. Women who cannot nurse their offspring, are not progenitors of the future race, unless we can find the causes of their deterioration and remove them. Prior to the industrial era, the sufferers were mostly in the upper classes, and many a family has been kept in existence for centuries by the simple expedient of having a wet nurse for every infant, as among royalty. Now-a-days the afflicted women are in all classes, even the lowest, who simply cannot afford the expense of wet nurses, or proper artificial food. It is doubtful whether charity should, or could, step in to save types of humanity unable to save themselves, brutal as this may seem. The evolution of a baby sturdy enough to subsist on what we prepare for it, is a possibility of course, but so remote as to have neither practical nor theoretical significance. Unless therefore we can find the causes which deprive women of their milk, and create an environment fit for them, we must face the dreadful fact of a high infant mortality in our cities. We may save many by individual efforts, but unless we can remove the cause, the majority are beyond our reach. As in Germany, it seems to be nature's stern way of fitting us for our new environment. So let us get to work at once to make the environment fit for us. Luckily the stupendous advances in transportation are making it possible for men to keep their families at a great distance from their places of work. The vast majority can go home each night to sleep, where it is wholesome. There are untold thousands of healthy families in our suburbs who would have perished had they remained in the cities. This scheme is carried to extreme lengths, as we have swarms of workmen who leave their families in Europe, and their children are being raised in the lands of their ancestors. The outlook then is not so pessimistic. We must merely continue what we have always done to some extent, make the environment fit for us, by appropriate shelter from adverse factors. We cannot take a step until the medical profession determines what factors we must be shielded from, and it is time for observations upon the types of people who are keeping up the high infant mortality.

The necessity for poor children to work is apparently an accepted fact, if we are to judge by the tone of current discussions of child-labor legislation. It seems true of agricultural life, for no small farmer can work his farm without the assistance of his wife and children, but it has generally been assumed that in every other walk of life, a man should receive a wage sufficient to keep a large number of children in idleness until they are well developed. Social workers are now beginning to realize that some kind of an economic law regulates the matter, something in the nature of the competition of the struggle for existence, and that the men of the world unaided cannot produce the food and other necessaries for the women and children. Cruel as it seems, the poor child must work or starve. The universal prevention of child labor being impossible, competition compels the piece-worker of sweat shops to utilize the labor of wife and children to earn enough to survive. Some physicians are even asserting that the better nourishment of child laborers compensates for the evils. If all this is true, then it follows that laws preventing child labor may not be free from

harm. As physicians we should therefore direct our efforts against harmful employments and unsanitary conditions rather than against child labor itself. We are led to make these remarks again, because of the report that a certain religious conference recently raised objection to a new clergyman on the ground that the salary he could command was not big enough for his large family. The children would suffer for necessaries unless they became objects of charity or went to work. The high cost of living now makes it impossible for a clergyman to raise a large family. To be an acceptable servant of God, in the eyes of certain congregations, he must practice prudential restraint of some sort, and *yet it is a crime for physicians to send such information to him through the mails.* The young clergyman faces a very nice point of ethics in determining the proper course; that is, if he is a real man physically. Now that a large family is a burden instead of a blessing, as on a farm, we notice that there is less praise bestowed on the father of numerous offspring. *We hope to see the day when a man is punished for bringing into the world a horde of children he cannot support even to the working age.* We as physicians are vitally interested in preventing underfeeding and its deplorable results as found in the large families of the poor. Wholesome work seems a necessary part of a child's education, and assists development. There is a growing opposition to bills preventing child labor, and it seems we have gone too far where such bills have been enacted into law. The whole subject should be reopened. Why should we allow one child, physically unsuited to farm work, to be injured or killed by it, and prevent another child from working in a well ventilated factory although perfectly suited for such a life? Adaptation must be considered as well as sanitation. In addition, is school-room education so vital a matter as we commonly assume it to be? It may be heresy to ask the question, but we dare to ask it all the same.

Syphilis or Bad Habits? The crusades in this country against the use of alcohol and tobacco have not usually been characterized by moderation in statement, and there can be no doubt that many chronic and fatal lesions of the human body have been wrongfully attributed to these agents, when, as a matter of fact, some organic disease has been the real cause. Our older confrères can remember the striking legend of the beer-drinker who accidentally drove a rusty nail into his hand and succumbed shortly after to "blood-poisoning," a result, the story used to conclude, quite impossible in a total abstainer. This venerable fable vanished in the light of modern bacteriology; few teetotallers nowadays would care to risk a rusty nail in their tissues. But to this day atheroma and calcareous degeneration are often attributed, and by medical men, solely to the excessive use of tobacco. To us the occurrence of a calcareous plaque from tobacco alone is quite unthinkable, and we are not disposed to believe that even the adjuvant effect of whisky could develop so serious a lesion. When symptoms of atheroma are plainly marked, the physician should invariably institute a series of Wassermann tests and in the great majority of cases he will find them positive. In the few cases where the test repeatedly proves negative we should make

a careful investigation into the family history, believing we should very likely find traces of gout. There was a time when we had to depend upon a more or less treacherous memory in the patient for a history of a hard chancre, and in many cases the initial lesion occurs without in the least attracting the attention of the victim. The Wassermann enables us to place the blame for atheroma where it belongs. We do not wish to be misunderstood as underestimating the depressant effects on resisting power of the *excessive* use of alcohol or tobacco, but that is another matter entirely.

Tobacco not Wholly to Blame for Amblyopia. Another instance where the entire blame has been placed on tobacco, with or without alcohol according to circumstances, is in the dimness of vision met with in middle age which has been invariably diagnosticated, if the victim smoked or drank or both, as tobacco and alcohol amblyopia. Most of the disputes over the etiology of this condition have in the past been limited to the question as to which agent, tobacco or alcohol, was the real cause. Now despite the causative effects of overindulgence in either of these agents, it is of significance that this amblyopia occurs only in hypermetropes or in victims of hypermetropic astigmatism. That is to say, it is of strictly organic origin, for every oculist knows the immense and continuous strain imposed upon the system by an uncorrected hypermetropia. Another point is that it is almost unknown among cigar makers or other workers in tobacco, is rare among chewers and snuff takers, and is most common among cigar smokers, i. e., those whose eyes are to some extent exposed to an irritating smoke, to say nothing of possibly invisible empyreumatic products of the weed. Those physicians who have met with this amblyopia are aware how resistant it has always proved to treatment, even including complete withdrawal of tobacco and alcohol. If they will send such patients in the future to an ophthalmologist for full correction of the ocular defect, they will find the nyctalopia, dazzling color blindness, retinal asthenopia, and other annoying symptoms yielding more easily to the systemic tonics they naturally prescribe. The color blindness, even when only partial, is a serious matter if it occurs in a railway or steamboat employee, but grave as it is it does not excite the patient's alarm as much as the dimness of vision and the sudden dazzling which temporarily abolishes the perception of objects. It is to the French ophthalmologists, Lapersonne and Terson, we believe that we owe the discovery that hypermetropia is an indispensable factor in tobacco amblyopia and our thanks are due them for the obvious indication of the proper treatment of a serious and terrifying condition.

A Simple but Little Used Remedy for Constipation. Although most of the writers on practice recognize that weakness of the abdominal wall from obesity or overdistention from repeated pregnancies is a frequent contributing factor in constipation, none to our knowledge recommends, as a remedy, the practice of deep, abdominal breathing. Deep breathing, however, is a potent method of strengthening the abdominal parietes as well as the diaphragm and, if carried out regularly,

will be found to give very efficient aid in securing a daily evacuation of the bowels. Women, it is well known, owing to their mode of dress, are usually restricted to costal breathing and many office workers and other sedentary persons have much the same defect. In commending this simple, physiological remedy to our confrères we need hardly warn them of the well nigh invincible laziness of the average constipated individual who seldom applies to the physician for treatment until he has produced a profound atony of the bowel by the use of every patent pill and quack appliance sufficiently well advertised to have attracted his attention. Gymnastics even of the mildest kind will appeal to these patients very little, but the deep breathing is worth trying. To empty a lazy and overfilled bowel by the way, a deep injection of some neutral oil, sweet oil for example, will be found to produce most copious and satisfactory results.

Examinitis is a newly coined word to express the idea that the English educational system is basically wrong in that it is designed to prepare students to pass examinations and not to train them for their life work. The nation seems to have gone examination mad—at least the pedagogic part of the people. In fact almost every school advertisement states that the curriculum is arranged to coach the pupil for this or that examination. School certificates do not seem to have any value, and no examiner will accept the word of a teacher that the graduates are qualified in specified branch. As a result an educational system has grown up which the critics denounce as chaotic and devoid of coordination, each school for itself instead of playing into the hands of the next higher grade. We have been deluged with so many criticisms of American schools that one rather gathered the impression that something was dreadfully wrong on this side of the Atlantic, but we now feel quite proud of our teachers and the school system they have built up. Nothing human is perfect and it is entirely probable that a thousand years hence someone will be launching dreadful Philippics against the board of education because some defective child was not made self-supporting until 18 whereas it should have been turned out at 17—"finished" as far as its arrested brain would permit. That is, criticisms are always possible and necessary, for it takes an outsider to see remediable defects which the insider considers necessary evils—or does not see at all. We delight in taking an occasional fling at the teachers ourselves, but they should be quite set up over the fact that as time progresses the criticisms become more a matter of details which destroy perfection rather than real efficiency. The English critics are answered by the indisputable fact that their schools do produce good results somehow, though perhaps there are so many great minds that the intellectual output of the Empire is great in spite of bad training. The nation has always had a genius of "fitting means to ends." Though they themselves constantly say they "muddle along somehow," it is because of this genius for compromise of opposing factors which produces results fulfilling no one's ideal but which has the supreme advantage of preventing the rancor resulting from our way of allowing the majority to trample on the minority. So we must not take their school criticisms too seriously nor adopt their ways under Amer-

ican conditions so vastly different that failure is sure to result. Nevertheless it might be well for us to do a little self-examination to determine whether we also have not carried examination of pupils a little too far. The medical examiners of State Licensing Boards have mended their ways quite decidedly so we are informed, though they once asked questions whose answers could not possibly give the slightest information as to the candidate's fitness to practice. Let us suggest that in the case of physicians, moving from one state to another for reasons of health or some cause unconnected with success or failure as a doctor, the best way of deciding their fitness for a license is first to find out whether they have practiced successfully, and not ask questions on academic matters one ought to forget. Let us remember that there is such a thing as examinitis, and that a brain crammed with a multitude of useless facts, may show up brilliantly on an examination, but be so clogged as to be unable to put the knowledge to practical use. We know we are raising the pedagog's ire by thus stating that there is such a thing as too much knowledge, but as a fact the world's work is being done by specialists who are densely ignorant of everything outside their respective narrow spheres—and of many things inside too.

The Protean Iodine. If the average practitioner were to look back over his prescription files, would he not find that iodine occupied a very large amount of space? That remarkable drug was the foundation of all the old "blood purifiers" so popular during the past five decades and it entered into many another patent medicine as the sole really active ingredient. Lorand, of Carlsbad, tells in a recent issue of *Journal des Practiciens* how he has used it in diabetes of the aged with surprising results. His first case was that of a man of sixty years who had marked arteriosclerosis, which condition induced Lorand to prescribe iodine. To his surprise and pleasure the sugar disappeared from the urine in this patient. Shortly afterwards he had a woman of fifty-five years who had a resistant asthma in addition to her diabetes. To meet this asthma Lorand tried iodine and again the sugar percentage notably diminished. In a third case, remembering the two others, Lorand tried iodine again although there was no prominent symptom save the excess of sugar in the urine, and was again rewarded by excellent results as to the diabetes. The experienced French therapeutist is inclined to think now that iodine has some specific influence on the arterial circulation of the pancreas and he advises his colleagues to try the familiar drug in all cases of diabetes in the aged.

As to Vegetarianism. About 1840 some observant Englishman wrote to the *Times* that he had noticed a certain Irish porter whose muscular strength was enormous and had found upon investigation that he ate no meat and that potatoes made up the great bulk of his diet. Similar observations have been made since; but it has not been found that any mental worker of note was an exclusive vegetarian. Up to 1889 or thereabouts the Japanese navy was nourished mainly upon rice; beri-beri used to destroy some 33 per cent. of the sailors. When the Russo-Japanese war broke out, the Japanese navy and army were placed

upon a diet which contained a large proportion of meat. Immediately the proportion of beri-beri dropped to less than 3 per cent., while the results otherwise were such that the government has not thought it best to reimpose the vegetable régime. Hutchison points out that a purely vegetable diet is not as useful as a mixed diet in convalescence and that apparently vegetable protein and fat are not assimilated as well as their animal equivalents. According to MacCay the native students in Bengal, who eat vegetables exclusively, are not the equals in height, weight or thoracic measurement of the European students who eat meat. Skinner has shown that pigs nourished exclusively on corn do not do as well as when milk is added to the food, when both hair growth and weight begin to be more marked. Similar experiments have been made on white rats, and it has been shown that those fed on meat become heavier, more combative, and stronger generally than those fed on vegetables alone, besides living longer. It has been objected that certain chronic diseases are more common among meat eaters, Bright's disease particularly. But MacCay avers that the Bengal natives suffer more from nephritis than the Europeans. Bright's disease is said to be common among French priests between the ages of thirty-five and forty years, but some French investigators are inclined to think that it is the resorption of spermatic toxins which has a malign influence on the kidneys of all celibates by a direct irritant action.

Difficult Labor Among Mountaineers. Dresch, of Ax-les-Thermes, has recently been reverting to a communication he made to the Obstetrical Congress at Algiers in 1907 concerning the various abnormalities in labor he had noticed among the women who dwell on the sides of the Alps. In multipara over thirty years of age he has frequently met with stricture of the superior strait and has been obliged to conclude labor by a painful version, and difficult forceps application, or even a cephalotripsy. It was some time before he observed that all these patients dwelt on the mountainside and were accustomed to carry heavy burdens on the shoulders, the back or arms, sometimes on all together. In climbing or descending the mountains these women are obliged to balance themselves with great care and to readjust the center of gravity almost continually. It is not long before a marked displacement of the spine occurs, a twisting of the vertebrae with stiffness, new scleroses, and eventually ankylosis, together with a slipping of the last lumbar vertebra upon the sacrum strait is inevitably although slowly produced; the sacrum has been driven from front to back and twisted on itself, and the axis of the pelvis, besides being made asymmetrical, is carried forward while an abdomen more or less laden with fat still further complicates matters. Preste Rigamonti has pointed out in *Gazetta degli espedali* similar conditions induced by women carrying baskets on the back, although he has found trouble mainly with primipara, while Dresch's patients are always multipara and over thirty years old. Dresch attributes this difference to the more humane treatment of children and young women in France; apparently women in that country are not abused till they have been married for some years.

What is the nature of the mania for gambling? The recent death by a fall from a window of a prominent professional man was attributed by some of the investigators to suicide after heavy losses at bridge. Whether the conclusion was justified in this case or not, suicide is a frequent termination of the life of a chronic gambler, be he card player, roulette fiend, or follower of race horses. It is noteworthy that individuals of neurotic temperament are ever attempting to escape the actualities of existence by plunging into either some form of narcotism by drugs or a similar condition induced by gambling; for the complete obsession of the individual by gambling is precisely the same condition as that brought about by drugs, i. e., an oblivion of the real surroundings. The recent study of alcoholism is interesting in this connection as showing that alcohol is in reality a narcotic and that its apparently stimulating qualities are due to paralysis of inhibition—which is the same thing only to the subject himself. Not many years ago alcohol was alone, except for a small percentage of wicked work done by opium, as a drug narcotic; cocaine was unheard of; but gambling probably antedates alcohol, old as that must be. It is remarkable that gambling leads to the same perversions of judgment as do the stupefying drugs. Money, for example, is to the gambler simply an indispensable means for the gratification of his passion; it represents so many counters, useless for other purposes and not to be wasted on food, clothing, or other things unconnected with his vice. A gambler will go without a meal in order not to diminish his funds below the amount demanded in advance by his favorite resort to participate in the games; still more will he deprive wife and children of necessities for the same reason. This is precisely the attitude of the drug fiend towards his habit.

Like all vices gambling is simply an exaggeration of a normal human characteristic; there is in all of us a desire to escape from the dreary bread-winning round and we like to lose ourselves in a play, a novel, even a game of cards, while we leave without regret our daily duties to pass one-third of our time in oblivious slumber. The normal individual, however, faces his duties towards himself and his family, while gambler and drug fiend alike cannot bear to become fully aroused to the actualities of existence. A gambler is as dangerous to his family as an alcoholic, more dangerous than an opium fiend. There seems to be no remedy for him but a sanitarium—not to call it an asylum—where long enforced abstinence from his vice may induce new habits and bring about a saner outlook on life. We are not often called upon to treat a gambler, at least not for his gambling propensities, but a time may come when the victims of such habits will be brought to the alienist. Actual association with horse, card, and roulette fiends is required in order to realize what a terrible grip their habit has upon them. It is a veritable monomania. Only a few days' successful gambling will induce the victim to quit a paying position, his judgment unsettled to such an extent as to lead him to the belief that his "luck" will last forever and that the hours he spends in dull but gainful occupation are wasted. There could be no more suitable subject for judicious psychological treatment at the hands of his physician than the gambler.

The limited arithmetical ability of the average man is having a curious effect on industrial processes depending upon cheap labor. The metric system with its large numbers and decimals is found beyond the mental caliber of workmen who must deal in numbers less than a score and preferably less than ten. They can grasp a finite measure like a quart or bushel but a number like 723 milli-meters conveys no idea to them. Consequently we find that arbitrary measures of capacity are being resorted to in dealing with large quantities, so that the numbers to be reported or remembered may be small. Policemen find great difficulty in perceiving and remembering large automobile numbers and are trying to devise systems by which not more than three figures are to be remembered. It is a well known psychologic fact, but it seems to be forgotten by those who wish to force the metric system on people who cannot use it. These measures are legal and if they were superior they would have long ago replaced the old measures with their simple sub-divisions into halves and quarters or thirds to make the next lower measure. As a matter of fact, the metric measures are losing ground even in countries where no others are legal, for the peasants in their daily tasks are compelled to stick to the old measures they evolved from the necessity of their limited sense of numbers. We expect that the unwise agitation will subside, and that laboratory workers, for whom the French system is indispensable, will realize it is not suitable for everyone else—particularly for the great mass of humanity who never perform any calculations except mental ones of a very simple nature. For these reasons, physicians are revising their ideas as to the wisdom of writing metric prescriptions. The gain to most of us is not worth the mental effort of thinking in two systems—if there is any advantage at all. Small numbers easily remembered seem safest and the most practical outside of the laboratory.

The bacterial origin of scurvy is the last of the blows given by modern methods of research to theories which are so old as to have a vested right in medicine. We have been convinced for several centuries that scurvy is purely dietetic, and as a fact the evidence is overwhelming that proper feeding has prevented it and cured it. So it is very irritating to be told that we are mistaken and that our observations are not complete. Nevertheless the only advances medicine has ever had, have been made by men who were convinced that accepted ideas are wrong. Such a man is Dr. W. Morton Hewetson, who had been commissioned to prevent the scurvy which was disabling certain South African workmen and he described his work in a remarkable article, "The Etiology of Scurvy," published in *The Transvaal Medical Journal,* April and May, 1911. It seems that anti-scorbutic food had failed and he tried to find out why. He first noted that the disease was not so prevalent among the tribes which did not mutilate the teeth and who had healthy mouths, but it affected the negroes who had abnormal apposition and caries from the habit of extracting or filing down the incisors and canines. Then came the collection of tartar, fetid breath, and acidity of the mouths from the presence of acid forming bacteria, which are rare or absent in healthy mouths. So it was quite logical to investigate whether cases of scurvy could be cured by curing the mouth. He succeeded almost invariably by simply keeping the mouth clean and

without making the slightest change in the diet, while the controls on antiscorbutic diet did not get well if the teeth were not brushed and mouth cleaned. so he concludes that scurvy is a bacterial toxemia, due to "a specific bacterial invasion of the tooth sockets and peridental tissues," and that the "condition known as scorbutic gums is purely and simply a local inflammation." This does not negative the facts we have known for so many centuries, but it proves that diet is merely a predisposing cause incapable of itself of causing the disease which never appears without the infection. But he does show that the infection alone is capable of causing the disease when the diet is perfect and antiscorbutics administered. This all sounds quite reasonable and fully explains many curious inconsistencies in the behaviour of epidemics—some men escaping while others die. On looking back it does seem that epidemics are worst in conditions where cleanliness is difficult or impossible from shortage of water as in arctic expeditions and long sea voyages, and its chief victims are among classes notoriously careless as to the toilet of the mouth. The only criticism which can be directed against Hewetson's conclusion is the doubt as to whether he was dealing with true scurvy, a modified beri-beri as some thought, or an entirely new disease. But he anticipates doubt by showing that all cases coincide with the classical descriptions of scurvy, and if it is a new disease the cases always have been considered scurvy. The matter is of additional interest because of recent objections to the alleged proof that beri-beri is purely dietetic, as it has appeared where rice did not enter into the diet at all. The absence of certain unknown ingredients in the layers of rice removed by polishing may cure it. That is, the old suspicion that beri-beri is a toxemia, from some organism in or out of the body, has been renewed. The lesson to be drawn from these new observations is the fact that it is unwise to be sure that any medical theory is ever proved beyond the possibility of discussion. We have been shifting back and forth on the etiology of beri-beri and cancer and we must not expect to settle the scurvy question or any similar one, until we find a specific organism or produce the disease without one. We must expect all kinds of shocks to old theories now that we have learned that smallpox uncomplicated by pus infection is really a mild disease.

The Journal of the American Medical Editors' Association made its initial appearance early in June. At the Annual meeting of the American Medical Editors' Association held in Atlantic City last year it was unanimously voted to publish the transactions henceforth in journal rather than in book form as heretofore. As the months go on we believe the members of the Association will see the wisdom of this. There are many arguments in favor of the regularly issued publication which we need not enumerate.

The first copy of the *Journal of the American Medical Editors' Association* is very interesting. It contains several excellent articles of more than passing importance to medical editors and also carries reports of last year's meeting and full announcements of the one held this year at Minneapolis.

We offer our heartiest congratulation to the Editors' Association in at last having an organ which can serve as the mouthpiece of this powerful organization. Every independent journal should stand by the *Journal of the American Medical Editors' Association*, and realize that it is published in their behalf.

ORIGINAL ARTICLES.

THE HEAT REGULATING MECHANISMS OF CHILDHOOD.

BY

ERIC PRITCHARD, M. A., M. D., (Oxon.), M. R. C. P., (London).

Senior Assistant Physician Queen's Hospital for Children; Physician to Out-patients City of London Hospital for diseases of the Chest; Honorary Physician for Infant Consultations, St. Marylebone General Dispensary, etc.

The human organism is largely dependent for health and comfort on the physiological activities of the temperature-regulating mechanisms, consequently it is a matter of considerable importance that these functions should be efficiently performed.

Natural selection has definitely established that the vital processes of the human body are most economically carried on at a temperature of 98.6° F., or, in other words, that there is a waste of energy or a lowering of vitality when the temperature rises above or falls below this point. In strong and healthy individuals wide departures from this optimum temperature seldom occur, although there is usually a slight rise towards evening with a slight fall in the early hours of the morning, events which must be regarded as falling within physiological limits. The more serious excursions which take place in febrile conditions should properly be regarded as evidence of a breakdown of the thermotaxic mechanisms, although by some persons they are thought to be conservative and protective in character.

Breakdowns in the functions of the heat-regulating centres occur when the nerve cells of which they are composed are overstimulated or poisoned by toxic substances circulating in the blood, and, in common with other nerve centres, they are prejudicially influenced by fatigue, overaction, or inappropriate stimulation.

Without referring in unnecessary length to the anatomy or physiology of these thermotaxic centres, it may be stated broadly that they consist of groups of cells situated in the base of the brain which regulate combustion in the body, and of groups of cells in the cortex, known as the thermo-inhibitory centres, which control or restrain the activities of these thermogenic centres. Both groups of cells act in close association with the vasomotor centres which regulate the distribution of blood throughout the body.

By the harmonious cooperation of all these centres the bodily temperature is maintained at a more or less constant level despite great variations in the temperature of the environment, thus, as everybody knows, not only can the human organism survive a temperature which is sufficiently high to boil water or roast a leg of mutton, but it can also live for many hours in an atmosphere at which mercury freezes.

At the time of birth these complicated mechanisms are incompletely developed, and the infant behaves more or less like a poikilothermic or cold blooded animal, that is to say its blood temperature shows rises and falls in close correspondence with the temperature of the surroundings. Hence, unless special precautions are taken, the temperature of a baby may experience a sharp fall to 90° F. or even lower, within a few hours of birth. It must, however, be remembered that the ordinary clinical thermometer is not graduated to show such low readings, and consequently, unless

special thermometers are used the infant's temperature may fall to a dangerous point without our knowledge. In view of the fact that any extreme fall in the temperature has a most unfavorable influence on the vital processes, it is important that no unnecessary loss of heat should occur in the case of the new born baby; young infants can, however, survive a lowering of the temperature to a level which would kill older individuals, this is due to the fact that their thermotaxic centres are still undeveloped. If an adult, in whom these centres are fully developed, were to experience a fall in temperature to 90° F. or lower, such a condition would imply complete disorganization of the whole sphere of automatic functions, a state of affairs which would be quite incompatible with the continuation of life.

Under favorable conditions the heat-regulating centres of the infant soon become functionally active, but for many years to come they lack the stability of the mature centres. This is due to the defective control of the thermo-inhibitory mechanism, rather than to the immaturity of the thermogenic centres in the base of the brain.

The time at which the complete mechanism becomes functionally proficient, and the degree of its proficiency is almost entirely dependent on the experiences to which it is subjected. These nerve centres, like other nerve centres, must be trained and educated by the incidence of appropriate stimuli and these must be of normal strength and of sufficient variety. If they are too strong they dislocate the delicate mechanism, if they are too weak they do not call the activities of the nerve cells into play.

Antecedent to the crisis of birth there has been no variety in the character of the thermal stimuli, for the fetus has pursued its existence in the monothermic environment of a water bath. Consequently there have been no educational stimuli to train the heat-regulating centres. At the moment of birth all the conditions are changed, and new experiences are apt to crowd only too rapidly on the awakening activities of these young centres. It has always seemed to me to be a matter of very great importance that these early impressions should be of the very best kind, for it is during the plastic stages of immaturity that new functions are most easily learned.

Of recent years "faddists" and "cranks" have resorted to a practice of "hardening" children by a system of thermic education, which consists in allowing them to run about in cold weather with bare arms, bare legs, and bare heads. Whatever criticism such a system of training may deserve, it is quite impossible, on physiological grounds, to take exception to the general principle that the thermotaxic centres should be educated to their full capacity, for the more efficiently these centres do their work the more independent becomes the individual of the temperature of the environment.

Individuals, who, throughout the period of childhood, are sheltered from every breath of air, who are protected from every change of temperature by a system of closed windows and cotton wool clothing are very badly equipped for maintaining their body temperature when exposed to unexpected degrees of cold; in fact, under such conditions they very readily contract what is popularly described as a "chill." The pathology of a "chill" may be briefly defined as the dislocation of the thermo-

taxic and vasomotor centres by over stimulation with cold, just as the so-called heat stroke represents the over-stimulation of the same centres by unusual degrees of heat. Then again these centres may be dislocated by the clash of conflicting stimulation. For instance I mean that sort of shock which ensues when a child on a very hot day wades about in cold water. Under such conditions one set of impressions reaches the thermotaxic centres from the feet, and an entirely different series from other parts of the body. The consequence of this is that there may be a severe dislocation of the mechanism concerned, and the child may suffer from a syndrome of nervous symptoms, which in the language of the uninformed is usually called a "bilious attack." Although children with well trained thermotaxic centres can participate with impunity in the pleasures of paddling in cold water, while a hot sun shines overhead, nevertheless such experiences cannot be regarded as scientific methods of training the mechanism concerned; and it is due to the unsatisfactory results which sometimes follow from such methods, that the more rational methods have simultaneously fallen into disrepute.

There unfortunately exists considerable confusion in the minds of some people as to the distinctions between the *"principles"* of hardening, and the *"methods"* or *"systems"* by which the principles are carried out; and this confusion has so befogged the issues, that at the present time medical men are almost afraid to mention the word "harden" for fear of being misunderstood.

I believe, however, that the advantages to the normal child of an efficient education of his heat regulating centres, are so enormously great, that I would give to every child the benefit of as good an education in this respect as circumstances permit. But it will be readily understood that it is one thing to devise a system, and another thing to explain to someone else how it is to be carried out; you may give away the secret of your method, but you cannot always give the required understanding for putting it into practice. From want of time I find it quite impossible to explain to all mothers who bring their babies to my infant consultations, the details of a rational "hardening" method. I reserve my energies for the more serious cases. The cases I select for the treatment are the infants who come of tuberculous stock, or give evidence of rickets or malnutrition.

The main principle of the method is to give such children as many and as varied experiences in thermal stimulation as possible. The intensity of the stimulation, whether of heat or cold, must be adjusted to the physiological capacities of the child; progress there must always be, but over-stimulation never.

Over-stimulation of these nerve centres at any time may dislocate their delicate mechanism, but over-stimulation during the early stages of their development may have permanent results very prejudicial to their subsequent working.

I cannot hope in a short account, such as this must necessarily be, to give complete details of the method I employ, so that I propose only to explain a few of the main principles on which, in my opinion, success depends.

In the first place it is very important that the early lessons should be of a very elementary character, and that the transitions from one degree of stimulation to another should be very carefully graduated.

The stimulation is effected by means of both air and water; the temperature of the

room in which the new born baby is confined must be maintained at first at a somewhat higher level than is desirable for older children, and the baby itself must be wrapped up very warmly, in cotton wool for preference, to prevent loss of heat. As time goes on the temperature of the room may be allowed to vary, and the number and thickness of the clothes may be remitted, always, however, with the exercise of the greatest care that the feet or other parts of the body do not become cold; if the feet become cold the educational régime has broken down.

The date at which the baby may be first taken out of doors will depend on circumstances. This stage should not be precipitated. It must be remembered that the newborn baby is quite as slow to learn how to digest and assimilate food, as it is in learning to control its thermotaxic mechanism. If, therefore, a young baby suffers much loss of heat, it will be unable to compensate for such encroachments on its reserves of combustible material, and will lose weight. As soon, however, as it has begun to assimilate food and to increase in weight, there is no valid objection why it should not be taken out of doors under suitable conditions of weather, and with suitable precautions against "a chill."

The bath, however, must always remain the chief instrument of education. Thermal stimulation by means of water, both hot and cold, is more easily controlled than by means of air. The infant should have a bath every day, or even two baths a day, but, for the first few days of life, if a bath is given at all, it should be most expeditiously administered and at a temperature which is slightly above blood heat, i. e., about 100° F. As the infant grows older variations in the temperature of the water may be introduced, either by giving a tepid douche at the end of the ablutions, or by gradually lowering the temperature of the bath itself; both methods give excellent results, but on the whole, I prefer the latter alternative, although the choice depends to a considerable extent on the intelligence of the person who is responsible for carrying out the orders. A bath thermometer must always be used, and the individual who gives the bath, instructed in its use. I find no difficulty in securing the carrying out of the necessary details, even among the poorest women who bring their infants to my Consultations at the St. Marylebone General Dispensary, and the expense of bath thermometers is no obstacle as they can be bought for a few pence. The women are taught to use these thermometers either by the Dispenser, or by one of our health visitors, and many of them appear to take the greatest interest and pride in the proceedings. The instructions I generally give are to administer the first bath at a temperature of 100° F. and to lower the temperature by one degree every day, or every other day, as the condition of the baby, or the intelligence of the mother warrants. If the baby shows the least resentment or dislike to the temperature of the water, the mother is told to retrace her steps, and revert to a higher temperature. If in consequence of these proceedings an infant takes a dislike to its bath, it is a proof that the mother has shown a want of intelligence, and not that the method itself is at fault. As a rule I do not allow the régime to commence before the fourth or fifth week of life, and I generally call a halt when the temperature has reached 80° F. Some babies are very much easier to teach than others, some of those attending at my consultations have a cold

bath by the age of six months and thoroughly enjoy it, others do not seem to appreciate a temperature below 80° F. Many of my private cases take quite a cold bath (60°-70° F.) before they are 5 months old and always with the greatest benefit. The benefits of the method are very obvious and the students attending at my Consultations frequently express great surprise at the condition of the babies who are submitted to this course of treatment. As a rule it is quite easy to distinguish the "graduated cold bath babies" by their clear complexions, and general appearance of health and vigor. At our nursery training school[1] in Hackney this method is systematically employed, and I am quite sure it would be impossible to find a healthier or more vigorous set of babies anywhere, although when they are first brought to the school they are usually in a very poor condition.

It must be remembered that most of the energy-value of an infant's food is expended in the production of heat and that only a very small proportion is required for the purposes of growth, or for the performance of mechanical work, consequently the food requirements of infants depends to a very large extent on the temperature conditions of the environment, and on the opportunities provided for dissipation of heat by radiation or conduction.

In view of these facts we can readily understand how extremely unscientific it is to lay down hard and fast rules with respect to the quantities of food required by infants. If an infant is wrapped in a multiplicity of clothing, with limited opportunities for dissipation of heat, its food requirements are very different from those of a baby rationally clothed and provided with full opportunities for dissipation of bodily warmth. Some very interesting calorimetric experiments have been made recently in France by Dr. P. Lavialle,[1] which show how heat expenditure is economised by the wearing of different articles of clothing. For instance the use of a simple bonnet which covers the side and back of the head will effect a saving of some 80 calories in the 24 hours, which is equivalent to the heat-value of 4 ozs. of milk. In other words infants who wear bonnets require 4 ozs. less milk in the 24 hours than those who do not. Even greater economies are effected by the wearing of stockings, sleeves and outside shawls. A perusal of Dr. Lavialle's figures suggests some very interesting sums in proportion; for instance, if a baby rationally dressed, bathed regularly, kept in well ventilated rooms, and frequently taken out of doors, requires 24 ozs. of milk in the 24 hours, how many ounces does a baby require, which is enveloped in five flannel petticoats, which never has a bath, which is seldom taken out of doors, which sleeps in its mother's bed, in which movements are effectually inhibited by a multiplicity of clothing and in which most of the normal stimuli of metabolism are absent?

The consideration of problems of this kind explains why some of our most carefully devised dietaries for infants break down in practice, and emphasizes the great importance of the functions of the heat regulating mechanisms in infancy.

[1]This school is for training domestic nurses. It is supported and managed by the Women's Industrial Council. As a rule there are about 20 nurses in training, and some 12 babies in residence.

[1]P. Lavialle. Congrès National des goutes de Lait tenu à Fécamp les 26, 27 and 28 Mai, 1912. p. 29.

THE PROGNOSIS OF HEART DISEASE IN CHILDREN.

BY

EDMUND CAUTLEY, M. D., Cantab., F. R. C. P. London.

Senior Physician to the Belgrave Hospital for Children and to the Metropolitan Hospital, London.

In the consideration of the effects of the various diseases of the heart on the life of the child there is a great variety of factors, which must be carefully borne in mind and appraised as accurately as possible in the particular case. For the moment I shall leave on one side congenital affections of the heart. I shall omit the discussion of the prognosis during acute disease, or at any rate disease during its most acute stages, devoting my attention to the ultimate prognosis of those cases well on the road to recovery and those which come under observation with definite organic changes due to acquired disease.

Much too grave a view has been taken in the past, and indeed is still prevalent, of the prospects of even the slighter degrees of cardiac affections. Nowadays it is realised that the outlook depends mainly on the degree of involvement of the cardiac muscle, rather than on the actual type of murmur (if any), though to the latter a considerable importance must be attached.

The essential point is summed up in the answer to the questions:

A. What is the possibility of compensatory hypertrophy taking place and being maintained?—In children the cardiac muscle has not the same power of resistance to strain which it acquires in later life. Hence, in acute disease of the myocardium, rapid dilatation may ensue and prove quickly fatal. Moreover, the affected heart has to provide for the increased work thrown upon its muscle and valves, by reason of the defects due to disease, as well as provide for the needs of the growing organism as a whole. The strain falling on it during periods of rapid growth and at puberty may prove excessive. In order to ascertain the possibility of compensatory hypertrophy taking place we must estimate:

1. *The extent and type of the lesion* as shown by:

a. *The number of valves affected and the type of lesion,* i. e., whether obstructive or regurgitant. On general principles it may be stated that the prognosis increases in gravity with the number of valves affected. Stenosis is always more grave than incompetence, especially if it affects the auriculo-ventricular orifices. Stenosis is apt to be slowly, perhaps extremely slowly, progressive. Mitral stenosis causes less distress than incompetence, but the heart is more apt to break down under extra strain and there is greater liability to embolism. In childhood stenosis is more serious than in adults, for the orifice cannot grow in size with the growth of the heart and, therefore, the obstruction becomes relatively greater as age increases. For similar reasons aortic stenosis is extremely grave. Fortunately it is rare. Children, thus affected, are apt to remain healthy though small and may die quite suddenly. Aortic regurgitation is less serious, especially after puberty, the outlook depending largely on the severity. Tricuspid regurgitation is common as a relief to mitral stenosis and regurgitation. Stenosis of this orifice is rare, but serious.

b. *The condition of the myocardium,* namely, the presence of any myocardial degeneration.

It is comparatively rare for rheumatic fever to affect the valves of the heart without causing some myocarditis, so we must always suspect its presence and subsequent effects in all cases of morbus cordis due to this cause. Fortunately in many instances the affection is slight and recovery appears to be complete. Degenerative changes affect the myocardium in all sorts of infective febrile conditions and toxemic states, notably scarlet fever, influenza and diphtheria; and may even complicate the old-fashioned "influenza cold." It is chiefly on an accurate estimation of the state of the myocardium that a sound prognosis will be arrived at.

c. *The condition of the serous surfaces,* e. g. adherent pericardium.

The greater the extent of the adhesions, the worse is the prognosis. This results from the severe obstacle to hypertrophy of the heart and the necessity for the heart to hypertrophy in order to overcome the resistance caused by the adhesions. Moreover, it is almost certain that in pericarditis, sufficiently severe to cause general adhesions, the myocardium will also have been affected. I am accustomed to attach very great importance to the character of the pulse as a prognostic factor. If a child with mitral regurgitation and adherent pericardium has a small pulse, of about 120 per minute, in spite of rest in bed and careful treatment, the outlook is very grave. The smallness of the pulse in relation to a mitral regurgitation, in which the pulse ought to be of considerable volume, is a measure of the degree of adherence of the pericardium. And the absence of a subsidence in the rate per minute under treatment indicates the improbability of compensatory hypertrophy.

d. *The state of innervation as shown by pain.*

Definite anginal attacks are uncommon in children, but cardiac pain is not infrequent and must be regarded as a sign that there is undue strain on the muscle and that compensation is probably on the verge of breaking down. The outlook is extremely grave, if attacks of cardiac pain are frequent and severe.

2. *The magnitude of the lesion,* i. e., the amount of injury as shown by:

a. *The greater or less development of the physical signs proper to the lesions.* In this respect it must be noted that the mere loudness of a murmur is comparatively unimportant. Sometimes functional murmurs are extremely loud, while those of severe organic disease are quite trivial. Similarly, thrills are of uncertain value. Their presence generally indicates a well marked stenosis and a powerfully acting heart. On the other hand a thrill is apt to disappear as the heart fails, and may be absent in extreme stenosis.

b. *Hypertrophy, with or without dilatation, general or partial.* It must be remembered that the amount of hypertrophy depends on the duration as well as on the size of the lesion. It is the best measure of the magnitude of the lesion and shows that compensation has been more or less completely attained. If it is very great, it is unlikely to be lasting, for the more a muscle exceeds its normal bulk, the more difficulty has it to maintain its normal nutrition and functional activity. Dilatation, on the other hand, unless trivial and compensated for by hypertrophy, is a proof that compensation has broken down. If it has been in existence for some time and does not improve quickly under treatment, it is prob-

able that compensation may not be regained. In these conditions there is a tendency to more or less sudden death from syncope, embolism, pulmonary congestion or angina.

c. *The effect on the cardiac circulation, leading to degeneration and its results.*

This is a less important factor in children than in adults, for affections of the coronary arteries resulting from atheroma and syphilitic disease, are comparatively very rare.

d. *The effect on the systemic (and, or) the pulmonary circulation,* arterial (and, or) venous, leading to changes in the nutrition and function of different organs, viz.: brain, liver, spleen, kidneys and alimentary tract, and general or local dropsy. Dropsical effusion is less common in children, because of the excellent nutrition of the body cells. It is rarely seen, except in late stages of mitral regurgitation in which the sequelae are the same eventually as in adults. One of the most important signs is the effect on nutrition generally. In the absence of dropsical effusions a gain in weight is of favorable import, whereas a stationary weight indicates that the heart only suffices for the nutrition of the existing frame and not for growth. Malnutrition is a fair measure of the incapacity of the heart for its proper functions.

B. What is the probability of efficient compensation being maintained?—This is partly answered in the preceding paragraphs. Thus, if the damage is relatively slight, compensation well established, and the effect on the circulation trivial or absent, the outlook is very good. An important element in this connection is the causation of the lesion.

1. *Is it traumatic in origin?*

a. *Due to strain or injury,* such as sudden or violent effort, leading to rupture of a valve or detachment of one or more of the chordae tendineae, or long continued, excessive muscular exertion. These are factors rarely coming into play in children. Undue hypertrophy often occurs in boys from over-exertion, either at play or work, and is not a condition to be encouraged. Overstimulation of growing muscles is injurious. In rare cases valves have been ruptured by violent exertion, such as bicycling; and long distance running may cause acute and rapid dilatation of the heart, perhaps rapidly fatal.

b. *Acute disease, which sooner or later comes to an end,* leaving mischief but not progressive mischief. Rheumatic fever is the best illustration of this point. If the type, extent and magnitude of the lesion be not very serious, the patient may gain complete or almost complete compensation and live a long and active life. Sometimes the lesion is repaired and the heart returns to its normal size. Thus, it is by no means rare for a mitral regurgitant murmur, present during the course of rheumatic fever, with displacement of the apex of the heart outwards, to eventually disappear entirely. Unfortunately there is always the possibility that the murmur in such cases was due to dilatation of the ventricles or of the auriculo-ventricular orifice, and not to actual valvular disease. Still, there is no inherent improbability in the view that valves may be sufficiently damaged by inflammation to produce a murmur and yet that they may heal so completely as to leave no destruction of tissue, which would allow leakage when the valves are closed. It is unwise to state definitely in any particular case that the murmur will disappear and the heart

eventually show no sign of previous damage. But an excellent prognosis can be given as regards the duration of life and the power of work.

2. *Is it constitutional in origin?* The general degradation of nutrition due to age, alcoholism and syphilis, usually develops much later in life. Sometimes, in traumatic cases, the lesion is so severe in its effects on the circulation, and secondarily on the nutrition and function of all organs, including the heart itself, that a progressive cachexia results. Further cardiac mischief then renders compensation impossible. Such a result is seen in the most severe cases of myocarditis and adherent pericardium, and less often in valvular lesions, and then an attack of bronchitis, a little overstrain or other comparatively trivial cause proves the breaking strain. Moreover, an important element in prognosis is the degree of probability of a recurrence of the exciting cause. The outlook is more grave in children who are markedly rheumatic and have a strong family history of this disease, than if the child is the only one of the family to have been thus affected.

C. Social and Personal Factors.—The prognosis is naturally more favorable in those patients who can obtain proper diet, clothing, hygienic surroundings and a change to a suitable climate, when necessary. In order to maintain compensation at its optimum level the child should take as much exercise as possible out-of-doors as he can, without causing distress, i. e., pain, palpitation or dyspnea. The usual indications that a cardiac patient is doing too much in the way of exercise are successively, inability to enjoy the next meal, disturbed sleep, breathlessness and edema of the feet.

The recuperative powers of childhood render *age* a factor in prognosis, though not an invariably favorable one. I think that the myocardium is much more apt to be seriously involved in the younger than in the older children. Moreover, the restlessness of children is an obstacle to ensuring complete rest for the prolonged period so necessary to good recovery. And, as already mentioned, the heart has to provide for growth as well as compensation.

Sex is not of much assistance. The slightly increased risks consequent on parturition in the female are probably not greater than those of the more active life of the male. Mitral stenosis is the most serious bar to pregnancy.

A family predisposition to shortness of life or to diseases of arteries or kidneys, or to obesity, would certainly limit the probable duration of life. So, too, the presence of any general or local disease which is likely to directly or indirectly react on the heart, e. g., causes of increased arterial or pulmonary tension, and general causes of malnutrition.

Naturally a *temper* which is quiet, well controlled and backed by a strong will and a joyous disposition are favorable factors.

Congenital Heart Disease.—Most of the factors discussed bear on the prognosis. It is important to realize that the loudness and character of the murmurs are of much smaller value than the effect on the circulation and the growth of the child. It is absurd to bring these children up as chronic invalids. A loud murmur is quite compatible with normal life, whereas a fatal issue may ensue very early even in the absence of a murmur or other evidence of cardiac defect. As a general rule, the greater the cyanosis, the worse the prog-

nosis, but patients become used to a considerable degree of lividity and may live a long time. It may prove fatal from syncope, fits, coma or secondary lung trouble.

The prognosis should be guarded in the presence of cardiac dilatation and hypertrophy, especially of the left ventricle, an unduly frequent pulse, shortness of breath or attacks of dyspnea with or without exertion as an exciting cause, and delayed physical or mental development. Convulsions, paroxysmal dyspnea, persistent low temperature and hemorrhage are bad signs in the early weeks of life. Subsequently, periods of stress are apt to arise from pulmonary disorders, pertussis, and alimentary troubles. The murmur of a patent foramen ovale may disappear entirely and reappear during respiratory distress. Puberty is supposed to be a dangerous period of stress, yet I have seen no special ill-effects at this period of life. As a whole it is rare for these patients to live a long life. Roughly, about one-fourth die in the first year of life, one-half in the first five years, three-quarters in the first fifteen years, while only about ten per cent. live over thirty years. The social and hygienic surroundings must be considered because of the special liability to rheumatism and pulmonary tuberculosis. And the susceptibility to infective endocarditis must never be forgotten.

SWEATING FEET.

Wash the feet in a weak formaldehyde solution—one part to nine of water. As a dusting powder use a mixture of salicylic acid, burnt alum, tannin and talcum. Do not use too much salicylic acid, for it may irritate the skin. The shoes and stockings may be dusted with this powder.—*Med. Summary.*

MEDICO-SOCIOLOGICAL ASPECTS OF CHILDHOOD.

BY

T. N. KELYNACK, M. D.,
London, Eng.

Medical Adviser to the National Children's Home and Orphanage, England; Late Physician to the Infants' Hospital, Westminster; Editor of *The Child;* "Tuberculosis in Infancy and Childhood"; "National Health Manuals—Infancy, Childhood, School-life and Youth"; etc. etc.

On both sides of the Atlantic thought and enterprise are being concentrated on the child. The great English speaking peoples are realizing that the children of to-day are the citizens of to-morrow. The fate of the future depends upon the developing life of the present. Little children are the arbiters of the destinies of our people. The child is an epitome of the past and in each unfolding life is found the treasury of the future. Science, Art and the Spirit of true Religion bow in hope, worship and thanksgiving before the lowly cradle. The child has become the new centre around which studies, enterprises and aspirations revolve. The child is a new discovery. Everywhere excitement, enthusiasm, extravagance and eccentricities are manifest over this fresh revelation. Realizing the possibilities of the child, recognizing responsibilities in regard to his care and control, admitting the apathy, neglect, misunderstanding and selfishness which have kept us in ignorance and inaction, understanding something of the urgent need for a serious study of child life, it is easy to forgive the feverish haste and irrational hustling with which endeavor is made to redeem the wasted past. The child has been neglected and rejected of men. Now, however, the tide of thought and sentiment has turned and there is a danger that some hindrance

or damage may result to the natural evolutionary forces working in each little life, unless a scientific spirit pervades, governs and guides methods and measures for Child Study and the Protection of Infancy, the Development of Childhood and the Perfecting of Youth.

The child must be viewed and dealt with as a unit, a living whole, a mysterious union of body, soul and spirit. The great evolutionary principle must ever be borne in mind in studying childhood. It is necessary that investigations of the child and his ways should be specialized, researches must be restricted, the services of experts must be requisitioned, all points of view must be occupied, every phase must be considered, all theories should be discussed and experiments are essential. This leads unavoidably to a separation of observers, a concentration of expert workers, a specialization of thought and action, a lack of broad minded sympathy, a narrowing of outlook, a danger of waste of time, talents and financial resources, and worst of all an incomplete, unbalanced and often futile application of principles by imperfect irrational and useless practices. These words of warning are not altogether uncalled for.

The members of the medical profession in bygone days have, like other leaders, been too forgetful of the claims of the child. Now, however, we are realizing that child study is a great medico-educational question, a far reaching medico-sociological problem in which we must assume leadership. We have to take a foremost part in assisting in the coordination of work, the cooperation of workers, the coadjustment of forces which are essential if a complete scientific and successful campaign is to be waged against the many and varied forces threatening child life and hindering and hampering schemes and movements for child welfare.

In this brief article it will be possible only to touch on some few of the chief points now receiving special consideration and to indicate in outline the main tendencies making for a more perfect medico-sociological study of infancy and childhood. My presentation is based mainly on my knowledge of activities in Great Britain, although I have endeavored to keep in touch with the splendid service which is being accomplished by our fellow workers throughout the United States of America, and to whom we, in this old fashioned country, owe so much.

Factors in the Medico-Sociological Study of Childhood.

Among leaders in all progressive countries a new spirit and purpose are evolving. In most civilized lands for a generation or more, systematic and state directed efforts have been made to secure education of the mind. A mighty literature is available, regarding this subject. For long the Churches and religionists of every class have sought to enforce what they considered essential for the education of the soul. During recent years much has been attempted towards improvement of means for insuring a natural education for the body. And now Science and Art, Educational forces and Religious impulses, voluntary enterprise and State action are seeking ways and means by which they may effectively cooperate in the furtherance of schemes for Child Betterment, Preventive Medicine, Remedial Surgery, Protective Pathology, and Pedagogical Hygiene. It is being realized that all the forces of medico-sociological science must be requisitioned for the care and control of the child, the

safeguarding of his environment, the instruction and assistance of his guardians and the preservation and protection of his coming citizenship.

Nothing in recent times has done more to hasten the cause of the child than the establishment of such agencies for cooperation as the International Congress on School Hygiene, the next gathering of which is to be held shortly in Buffalo; and the organization of systems of medical inspection of school children. The adoption of the Education (Administrative Provisions) Act, 1907, marks the commencement of a new era in regard to the health of the children of Great Britain.[1]

Sir George Newman's Annual Reports, as Chief Medical Officer to the English Board of Education, are documents which no student of child welfare can afford to neglect. They not only provide reliable information regarding the results of medical inspection but indicate lines for future advances.[2]

Mr. J. A. Pease, President of the Board of Education, in moving the Education Estimates in the British House of Commons on April 10th last, brought forward much interesting data which cannot but provide information and material for thought for all students of child welfare. The statistics of the Registrar-General indicate that the birth rate is steadily falling. In 1903 the number of births was 948,000 but in 1912 it had fallen to 872,000. The infantile mortality in 1911 was 130 per 1,000, in 1912 it had fallen to 95. The figures on the school registers of last year indicated 6,033,000 children. In 1902 there were 613,475 infants between three and five years of age attending elementary schools, whilst in 1912 the numbers had dropped to 332,665, a diminution of over 280,000 children or a reduction of 45 per cent. in ten years. Stress was laid on the importance of paying special attention to the health of the children. There was evidence of a serious amount of illness and trouble among children entering on school-life. Ten per cent. had their eyesight impaired in some way or another; 5 per cent. their hearing; 5 per cent. suffered from adenoids; and 50 per cent. from serious decay of their teeth; tuberculosis, 2 per cent.; heart disease, 2 per cent.; and malnutrition 10 per cent. One per cent. of the children were regarded as mentally defective; 12½ per cent. were considered backward and 3 per cent. were gifted in an abnormal degree. There were now 780 nurses at work in 21,000 schools; 943 medical officers were giving medical services, in the schools, 31 authorities were contributing to hospitals; 56 had established school clinics and expenditure on treatment was being made by 229 authorities out of 317. The cost in connection with treatment averaged 2d. per child throughout the whole country, the amount given in support of medical treatment during the financial year ending March 31 last, amounting to £50,374. In London arrangements had been carried out by 10 Hospitals and 23 Medical Treatment Centres. London received a grant of £13,683 in addition to the grant of £725 in connection with the open air schools which had been established by the London County Council. As regards Nursery and Mothers' Schools, in 1908 the

[1] Full particulars regarding medical inspection not only in Great Britain but in other countries will be found in "Medical Examination of Schools and Scholars," edited by T. N. Kelynack, M. D., with introduction by Sir Lauder Brunton, Bart. London: P. S. King & Son, Westminster, London, England, 1910. A bibliography appears at the end of each chapter.

[2] See "The Annual Report for 1911 of the Chief Medical Officer of the Board of Education." London, England: Wyman & Sons, Ltd., Fetter Lane, E. C. 1912. Price 1s. 5d.

Consultative Committee reported that if a mother did her duty and the home conditions were suitable, there was no better place for little tots of between three and five years than home under the mother's care. If on the contrary, the conditions of the home were not satisfactory, these children should not be sent to a school where there existed discipline and tuition suitable to older children and they should not be subjected to mental pressure or physical discipline. They should be sent to what the Committee called "Nursery Schools," places kept warm and well ventilated where there would be plenty of freedom of movement for the children, constant changes in their occupation and opportunities for sleep. The Committee recommended that the teachers should be very carfully selected to look after these children, and that in addition there should also be attendant nurses. Parents were getting to understand better how to look after their children. There were 200 Schools for Mothers, a great many medical officers were superintending the inspection of babies by either weekly or fortnightly visits, and a large number of most excellent workers, trained health visitors, visited the homes of the people and gave advice and direction to mothers on the way children ought to be cared for in their homes. With regard to play grounds the opinion was expressed that adequate school play grounds were vital to the health of the children, especially in slum areas and practical advantages would accrue to the children from organized games such as cricket and football. As to teachers a shortage had to be faced. In 1908-9, the number of pupil teachers and bursars was 8,740. In the year 1912-13 the number was only 4,329. The Board of Education regarded 14,000 as about the gross inflow that ought to come from the whole country. There were now 19,239 more certificated teachers in elementary schools in 1911 than in 1905-6; to replace all uncertificated teachers by certificated teachers would entail an increase of £2,403,000. It was admitted that the weakest spot in the whole educational system was the neglect of the education of children between fourteen and seventeen. Only 13 per cent. of the total population under seventeen were in attendance at continuation schools. In the discussion following the statement of the President of the Board of Education many valuable facts were brought out. In London £6,000,000 were spent annually on public education; 30,000 boys left school every year; only 28 per cent. found their way into skilled trades while 67 per cent. drifted into irregular employment. The whole question of educational principles and practices, organization and administration is being subjected to critical scrutiny, and it may be hoped that some scientific and practical constructive policy may speedily be discovered.

TUBERCULOSIS AND CHILD WELFARE.

At the present time wide interest is being taken in the question of tuberculosis in childhood. Medical inspection in the schools and the coming of the National Insurance Act with its special provision for tuberculous cases has forced this subject to the front. It has for some time become clear that we must pay greater heed to the protection of infancy and childhood from tuberculosis and influences making for a predisposition to tuberculosis. In 1908 the writer of this article urged that clearly the time is ripe for a thorough inquiry into the

relationship of tuberculosis to all phases of school life[3]. During the last few years there has been a great awakening to the recognition of the truth of this contention. The present position is excellently summarized in Sir George Newman's latest Annual Report[4]. A lengthy section is devoted to "Tuberculosis in School Children." It is shown that recent events have altered and strengthened the position of education authorities desirous of providing treatment for tuberculous children: (*a*) Notification of all cases of pulmonary tuberculosis, which became compulsory in January, 1912. (*b*) In the Finance Act of 1911 £1,500,000 were set aside for providing or making grants to aid sanatoria and other institutions in the United Kingdom for treatment of tuberculosis, or such other diseases as the Local Government Board, with the approval of the Treasury, may appoint. This money will not only be available for sanatoria intended for adults, but also for those intended for children. (*c*) The provision of sanatorium benefit by the National Insurance Act of 1911, though not directly affecting children, will certainly serve to promote the formation of a complete organization for dealing with tuberculosis on a national basis, from which children will undoubtedly benefit. (*d*) The provision of a grant towards the cost of treatment, in institutions, of non-insured persons and dependents of insured persons (including children) suffering from tuberculosis. A part of this sum may be available for the treatment of children. (*e*) Lastly, there is the provision of the Board of Education grant in aid of medical treatment and work ancillary thereto. Under the Board's regulations a portion of this grant is allocated to the treatment (in a broad sense) of tuberculous children attending day or residential schools. It is interesting to note that the Board considers that a school clinic and a tuberculosis dispensary may, if necessary, be housed in the same building, provided—(*a*) that the rooms used by tuberculous patients, adults or children, are separate and distinct from the rooms used by school children attending the clinic for complaints other than tuberculosis, separate entrances and waiting-rooms being arranged; (*b*) that all reasonable precautions are taken in regard to the infection of premises, etc.; and (*c*) that appropriate arrangements are made for correlating the work of the school medical officer with the work of the tuberculosis officer in the area. Sir George Newman's summary so well indicates the lines along which future advance must be made that we quote it here: "The main points for the consideration of education in regard to tuberculosis appear to be—(1) Improved arrangements for securing the detection and diagnosis of the disease among children, possibly in association with the tuberculosis dispensary when such exists; (2) The provision of additional accommodation for residential treatment, particularly of "surgical" cases; (3) an extension of open-air teaching by means of open-air schools, playground classes, etc., and, if possible, by the establishment of "night-camps"; (4) the need for systematic and prolonged after-care and following up. The importance of attacking the disease in

[3] "Tuberculosis in Infancy and Childhood: Its Pathology, Prevention and Treatment." By Various Writers. Edited by T. N. Kelynack, M. D. London: Baillière, Tindall and Cox, 8, Henrietta Street, Covent Garden. 1908. Price 12s. 6d. net.

[4] "Annual Report for 1911 of the Chief Medical Officer of the Board of Education." London: Wyman and Sons, Ltd., Fetter Lane, E. C. 1912. Price 1s. 5d.

childhood cannot be too often repeated, and the fact that the infection, at least in pulmonary cases, is frequently slight in degree, and that spontaneous recovery often occurs, does not mean that effective treatment is not required."

All interested in the care of tuberculous and tuberculously disposed children should study Professor Nietner's splendid lecture on "The Modern Combat against Tuberculosis amongst Children."[5]

Prof. E. Emrys-Roberts has recently published a valuable critical review of recent literature dealing with "Tuberculous Infection in Infancy and Childhood."[6]

Sanatoria for children must be very different places from the institutions which are being provided for adults. They have to be conducted as residential homes, open-air schools, hygienic training colleges, fitting the young inmates for life's vocations and responsibilities by inculcating the fundamentals of conduct and character. The results obtained in wisely-managed residential sanatoria schools are most encouraging. A model institution is the sanatorium at Harpenden of the National Children's Home and Orphanage.[7]

It has been suggested that the derelict steamboats of the London County Council might be used for day open-air schools, after the manner of the Tuberculosis Day Camps located on the New York disused ferry boats.[8]

In the recently issued Final Report of the Departmental Committee's Report on Tuberculosis,[9] special attention is directed to the needs of the tuberculous child. It is admitted that tuberculosis, in one form or another, is widely prevalent among children. The Committee consider the evidence convincing, that children are infected through tuberculous milk as well as from other sources. They recognize the importance of early diagnosis of tuberculosis in children, before pronounced symptoms have developed, and are anxious that measures for securing the early detection of the disease in children should be adopted. They also are of opinion that additional provision is required for the treatment of children suffering from the disease, including cases of pulmonary tuberculosis, tuberculosis in the bones and joints, and glandular and other forms of tuberculosis. It is pointed out that, in addition to the provision of treatment at sanatoria and hospitals for tuberculous children mentioned in the Interim Report, there is urgent need for a wide application of the principle of open-air treatment and education by means of open-air schools (day and residential),

[5]This lecture is reported fully in the *Lancet*, November 16, 1912.

[6]See *British Journal of Tuberculosis*, April, 1913. See also on "Tuberculosis and the Child" by T. N. Kelynack, *British Journal of Tuberculosis*, vol. vi, No. 4, October, 1912.

[7]Full particulars regarding this Residential Sanatorium and School for Children may be obtained on application to the Principal, the Rev. W. Hodson Smith, N. C. H. O. Headquarters, Bonner Road, London, N. E. Sir George Newman in his Memorandum submitted to the Department Committee on Tuberculosis provides a list of existing institutions for tuberculous children.

[8]For illustrations and particulars see "The Tuberculosis Clinics and Day Camps of the Department of Health of the City of New York," by John S. Billings, Jr., M. D., Monograph Series, No. 2, July, 1912. New York: The J. W. Pratt Company, 52-58 Duane Street.

[9]Departmental Committee on Tuberculosis: Final Report of the Departmental Committee on Tuberculosis: Vol. i. Report: (Cd. 6,641). Price 2½ d. Vol. ii: Appendix—Memoranda submitted to the Departmental Committee on Tuberculosis (Cd. 6,654). Price 1s. 7¼d. To be purchased either directly or through any bookseller, from Wyman and Sons, Ltd., Fetter Lane, E. C., and 32 Abingdon Street, S. W., and 54 St. Mary Street, Cardiff; or H. M. Stationery Office (Scottish Branch), 23 Forth Street, Edinburgh; or E. Ponsonby, Ltd., 116 Grafton Street, Dublin.

open-air classes, etc. Such institutions, it is contended, should deal not only with tuberculous children, but also with the large number of children who are suffering from ailments which, if neglected, would be likely to increase their susceptibility to tuberculosis. It is also desirable that these institutions should be utilized, as far as possible, to teach the advisability of the adoption of a practically open-air life in the homes of the children. It is also urged that local education authorities or school boards have the opportunity of playing an important and indeed an essential, part in the detection, prevention, and treatment of tuberculosis. In order to link up the local education authorities and school boards with the general scheme for the prevention and treatment of tuberculosis, it is desirable that the school medical officer should be closely in touch with the family medical attendant and with the tuberculosis dispensary, and that the dispensary or tuberculosis officer should provide, as far as possible, the same services for children as for adults. There should not only be a correlation between the dispensary and the various institutions for children, but the institutions for children, such as the school clinic, the open-air school, and the sanatorium, should be correlated one with another in order to insure the easy transference of children from one institution to another. All appropriate cases should be referred to the tuberculosis dispensary as a clearing-house for the confirmation of diagnosis in doubtful cases, for the purpose of clinical record, and for treatment where required. Children of school age fit, or likely to become fit, to receive education, even in modified form, should be referred to the school medical officer for education in open-air schools, sanatorium schools, or other special schools, or in ordinary public elementary schools under special care and supervision. The arrangements should be such as to secure the co-operation of the general practitioner. The wise suggestion is made that separate institutions, or at least separate pavilions or departments for children, should be provided. Cases of non-pulmonary tuberculosis should generally be treated in separate institutions or departments or under special administration, because of the different equipment and treatment required for these cases. The Committee consider that a sum of about £200,000 is required for the provision of institutions for children, and recommend that, if the £1,500,000 made available by the Finance Act, 1911, is insufficient to provide this sum, additional funds should be provided by Parliament. Such suggestions, it may be hoped, will speedily be carried out, for there is no more hopeful way by which to attain the extermination of tuberculosis than by concentrating care and control on the tuberculous and tuberculously-disposed child.

MEDICO-SOCIOLOGICAL MOVEMENTS.

Serious students of all schools are cooperating in the investigation of problems of child life and the furtherance of movements making for child welfare.[10]

Congresses, Conferences, Society meetings, Associations, Leagues and other organized bodies are undertaking much effective work in the interests of child life. Steps are being taken to establish a Central

[10]Records of new and proposed medico-sociological and medico-educational work relating to child betterment with notices of recent books, etc., dealing with the subject will be found in *The Child*, published monthly by Messrs. John Bals, Sons and Danielson, Ltd., 83-91 Great Tichfield Street, Oxford Street, London, W. (Agents for the United States of America: G. E. Stechert & Co., 151-155 West 25th Street, New York City). Annual subscription $5.25.

Child Welfare Bureau in London. Child Welfare Exhibitions have also been held and have done something towards educating public opinion.

The Eugenic movement is arousing many to a serious study of some of the fundamental factors underlying child betterment.[11]

Attempts are being made to get schools for social workers, those engaged in settlement duties, or serving as health visitors and the like to undertake systematic individual or collective study of the problems of child life.[12]

The Moral Education League by its publications and meetings is doing much to keep moral issues before Educationists.[13]

The interesting publications of the Duty and Discipline movement also merit mention here.[14]

Much excellent work is being accomplished by the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy and also by The National League for Physical Education and Improvement.[15]

Reference may also be made to the work which is being carried out by the Froebel Society and the Child Study Society of London.[16]

Special praise must be given to the admirable service which is being accomplished for child protection by the National Society for the Prevention of Cruelty to Children.[17]

These few references to some of the leading societies dealing more particularly with medico-sociological aspects of child life will indicate that considerable activity exists in Great Britain in regard to this subject.[18]

The Medical Officers acting as Medical Officers of Health and School Medical Officers, and now the recently appointed Tuberculosis Officers are all accomplishing excellent service in the cause of child welfare. The issue of annual Reports by the School Medical Officers keeps the question of the physical well-being of school children prominently before educational authorities and the public generally. The Annual Reports of Sir George Newman have already done much to educate public opinion along sound lines.

It is hoped that when the organization and administration of measures under the new National Insurance Act is well under way, means will be found for dealing with the dependents of insured cases, so rendering incalculable service to many tuberculous and tuberculously disposed children.

Within the next few years it is expected that there will be a great advance in deal-

[11]See *The Eugenics Review*, published quarterly by The Eugenics Education Society, Kingsway House, Kingsway London, W. C. Annual subscription 4s. 8d. See also Report of Proceedings of the First International Eugenics Congress held at the University of London, July 24-30, 1912. Published by the Eugenics Education Society. Consult also the memoirs, etc., issued from the Eugenics Laboratory by Messrs. Dulau & Co., 37 Soleo Square, London, W.

[12]See volumes of "National Health Manuals"—"Infancy," "Childhood," "School-life" and "Youth," published at 1s. per volume by Charles H. Kelly, 25-35 City Road. London, E. C. (Bibliography in each manual).

[13]List of publications of The Moral Education League can be obtained from the Central Offices, 6 York Building, Adelphi, London, W.

[14]See "Essays on Duty and Discipline": A Series of Papers on the Training of Children in relation to Social and National Welfare. London and New York: Cassell & Company.

[15]Full particulars of the work and publications of these agencies can be obtained on application to the Secretary, Miss Halford, 4 Taveslock Square, London, W. C.

[16]Particulars of the publication of the Froebel Society may be obtained from Miss Temple Ooms, LL. D., 4 Bloomsbury Square, London, W. C. The headquarters of the Child Study Society is at The Royal Sanitary Institute, 90 Buckingham Palace Road, London, S. W.

[17]The head office of N. S. P. C. C. is at 40 Leicester Square, London, W. C. Director: Robert J. Parr.

[18]A list of the more important Societies and Institutions devoted to Child Welfare appears in each issue of *The Child.*

ing with defective dependent and delinquent children. School Clinics, Treatment Centres, Day Open-air Schools, Residential Schools, special educational establishments and new agencies for dealing with exceptional children are rapidly coming into existence.

The New Mental Deficiency Bill, now before the British Parliament and the proposed legislation for making it obligatory on educational authorities to provide for the education of those mentally defective children whose age exceeds seven years, will be an inestimable boon not only to the feeble minded child, but to the community generally.

This brief and necessarily incomplete presentation of some of the more important of medico-sociological problems which are being dealt with in Great Britain, will, it is hoped, be of some service to medico-educationists and social workers in the far reaching United States of America. In this matter of Child Welfare it is essential indeed that the great English speaking peoples of the World should loyally cooperate in purpose, study and action.

139 Harley Street, London, W. C.

The modern method of giving big doses of ipecac in dysentery is in keratin coated tablets, so it will pass through the stomach unchanged. Thus administered it is said 30 grains may be given at a dose. Emetine might be administered in a similar way.

The history of a fairly sudden enlargement of a testicle does not necessarily mean an inflammatory or traumatic process. Such an enlargement may be due to spontaneous hemorrhage in a round-cell sarcoma of the organ.—*Am. Jour. of Surg.*

THE PRINCIPLES OF TREATMENT IN CHILDHOOD.

BY

H. J. CAMPBELL, M. D., F. R. C. P.,
Bradford, Eng.,

Professor of Pharmacology and Therapeutics in the Leeds University; Senior Physician to the Bradford Royal Infirmary.

Apart from certain idiosyncrasies the principles of treatment in children differ in several important respects from those which rule in the case of adults. It is not merely a question of dosage to body weight, but the conditions which exist in children are fundamentally different from those which exist in the fully grown organism.

In the first place the nervous system in the child is in a condition of unstable equilibrium, it is liable to be upset by mental and physical states, to react to slight irritation, to be easily depressed and readily exalted and generally speaking to be affected somewhat differently both in kind and degree from that which will occur in the more fixed nervous apparatus of the adult under like conditions and with similar stimuli. As a result, it is necessary to exercise caution in the administration of drugs which affect the nervous system and especially is this the case with those which have a convulsant action upon the spinal cord such as strychnine, or those which depress nerve cells such as morphine. On the other hand drugs which tend to depress nerve endings such as atropine may be used freely and are as a rule well borne. Substances which mildly depress the whole nervous system, as for instance bromides, act readily and in small doses are hence often useful though it is important to guard against the irritant action of any set free bromine upon the stomach and skin.

Secondly, as the child is growing, the tissues are increasing in bulk and new cells are being formed, at a far greater rate both relatively and absolutely than they are in the adult and it of necessity follows that the power of dis-association and assimilation is greater in the child than in the adult. This may afford some explanation of the fact that the association of nutrients such as malt extract or cod liver oil with drugs is especially serviceable in children and materially aids their effect. It may well be argued in such cases that it is the nutrient and not the drug that produces the beneficial result, but though this may often be true, it does not explain cases where drugs whose effects are determinable and constant are employed.

Thirdly, it must be borne in mind that there is not that specialization of function and localization of attributes, which is seen in the mature organism, thus for example, chronic tuberculous lesions of the lungs do not tend to localize themselves so definitely in the sub-apical regions or pneumonic consolidations to the bases of the lungs, eczema is less prone to limit itself to the inner aspects of the limbs and psoriasis to the outer. As a result of this want of differentiation, it is impossible in the treatment of children to divide drugs into special groups such as diuretics, diaphoretics, expectorants and so on with the same certainty as in adults, for in the former the effects will be more widespread and generalized and the specific effects less marked and definite.

Fourthly, each system is more elastic, action and reaction occur more quickly and in response to slighter stimulation in the child than in the adult and hence smaller relative doses produce more effect, though the effects last a shorter time, and disappear more readily and rapidly. For example the blood vessels contract on slight irritation with a resulting rise in blood pressure and a more active flow through the kidney vessels and a corresponding increase in the amount of water passed, whilst on the other hand, dilatation readily occurs, with sudden lowering of blood pressure and possible insufficient supply to the brain and the occurrence of fainting attacks.

Fifthly, none of the degenerative processes are likely to have taken place in any of the organs such as those which may have occurred in adults, due to their habits and modes of life. Grown up people being free to act as they please generally select the soft bed, the comforting cigar, the cheering glass and the food which appeals to the jaded palate. Children on the contrary have to live according to the rules that adults preach but don't practice and hence are to some extent free from the dangers that attach so closely to our modern civilization. The child's pliant vessels, healthy kidneys and active digestive organs enable him to destroy and cast out with ease, noxious substances, which the less healthy adult can only discard with pain and tribulation. The irritable nervous system of the child further enables him to reject either by purging or vomiting material which the adult retains or only gets rid of with difficulty. This is constantly seen after a feast. The adult is able to go on with his work and even to make every day a feast day, whilst the child has an attack of vomiting, and has a distaste for food for a day or two and is then perfectly well. The adult delays the day of reckoning, but when it comes, it is not a day or two, but probably weeks before he is restored to even partial health. With drugs as with excess or with deleterious food substances, they quickly pass through

the child's organism, they are readily absorbed and quickly excreted and hence only produce an effect over a limited period of time.

Sixthly, treatment should be prompt. Children quickly run down in the presence of illness and every effort should be made from the very beginning of an illness to conserve the strength and to avoid exhaustion. One or two sleepless nights may not be of much importance to an adult, but to a child, with the continuous tossing and twisting and the restless fretting and excitement, the results if the condition be at all persistent, may have a most deleterious effect upon the course and prognosis of the disease. Hence everything possible should be done, by external means first and later by drugs if necessary, to lessen excitement, to allay pain, to soothe and to comfort. Tepid sponging, a comfortable bed without too heavy a covering, plenty of fresh air in a darkened room, and if required the administration of a few grains of bromide and antipyrin, are measures that will often prove of the greatest service and will serve to materially alleviate the depressant effects resulting from the action of the disease upon the undeveloped organism. In chronic cases, sedatives should if possible be entirely avoided, for not only are they not required in the large majority of cases if the diet and the bowels be attended to, but in children they do actual harm on account of the fact that they are practically all depressants.

Seventhly, it should be remembered, that whilst children pick up quickly from acute diseases, yet they are more liable than adults to have nervous, cardiac or kidney troubles as sequelae and hence need closer and more constant watching and care, together with greater caution in allowing them to get up, or to resume their ordinary habits, than is the case with grown up people. Further, children are much more liable to conceal any condition if it lies within their power so to do, than adults, if admission is likely to interfere with their being allowed to sit up, to get up, or to resume their ordinary diet. This is due not to naughtiness but to an excess of imagination untempered by experience in that they picture the delights of getting free from the restraints imposed by illness with far greater intensity than the subsequent reality is likely to substantiate.

In accordance with the above principles, it is found in practice, that drugs which are slowly excreted in adults, especially if there be any degenerative change in the kidneys, are best given to children in single full doses once a day rather than in frequent divided doses. For instance, when arsenic is given to children as a remedy for chorea, it is found to be far more effective if administered in a single full dose once a day, than when given in small doses every six or eight hours, even though the actual quantity taken in the twenty-four hours may be less in the former case than in the latter. In this way and in this way only can the mass effect of the drug be obtained. If a drug be given intravenously of course the mass effect is still more definite, but for obvious reasons this is a method to be avoided in children when approximately equal results can be obtained in other ways. With morphia, its rapid absorption from the stomach and its quick excretion into the stomach and bowel, greatly intensifies the effect of a single dose, for the drug will be absorbed and excreted, reabsorbed and reexcreted and again taken up and discharged, before the part that has not been destroyed in the tissues, is finally passed out with the feces.

a result which is greatly aided by the paralyzing effect of the alkaloid upon the bowel. In children therefore, when it is essential to administer morphia, it should always be given with a laxative and guarded with a small quantity of atropine, for if given alone, a small dose relatively to the body weight, will produce much more effect in comparison than will be produced by an equivalent dose in an adult. With antitoxic sera and with vaccines on the other hand the rapid excretion that occurs renders them less powerful relatively to body weight than in adults, and hence they must be administered in relatively larger doses if equivalent effects are to be obtained.

Some drugs have a specific effect in children which can only be partly explained by the above principles, as for instance atropine. This like most alkaloids is excreted chiefly in the urine and this to some extent accounts for the fact that the drug is well tolerated by children and can be taken by them in relatively large doses without symptoms of poisoning supervening. This however does not explain how it is, that in very young children, atropine produces very slight effects in comparison to the results obtained in older children. This is still more marked when the effects are compared with the symptoms produced by equivalent doses in grown up people. Generally speaking, the younger the child, the better will it tolerate atropine and the less liable is it to develop symptoms of poisoning with moderately full doses. This relative tolerance of children to atropine and its allies, makes belladonna a most valuable remedy in the bronchopneumonia of children, for owing to the fact that the want of development of the nervous system makes its influence less potent upon the higher centres than with adults, the drug can be given in such doses as to enable the full effect upon other tissues to be obtained. The result of this is that its full action upon secretion and smooth muscle can be insured, the former being diminished and spasm in the latter being overcome. However, one may explain it, the fact remains that in children the best treatment for bronchopneumonia is to give belladonna in full and frequent doses until the child is fully under its influence and then either by lengthening the interval between successive doses, or by diminishing the amount given at one time, finding the dose which will serve to maintain the effect, until such time as the temperature falls or the general condition markedly improves. Whilst drug treatment in children is far more certain and the required effects can be far more confidently looked for than in adults, yet in these patients drug treatment should as a rule occupy only a subsidiary position, diet and general hygiene taking the first place. In adults, apart from chronic wasting diseases, the patient at the commencement of treatment is generally in a condition of over-nutrition, whilst in children, the opposite is the case, malnutrition being the rule rather than the exception. It necessarily follows that in very many cases in children, drugs are not needed at all, the only treatment required being attention to diet and general environment. In many skin diseases for instance, drugs, whether internally administered, or externally applied, are practically useless until a change is made in the hygienic conditions and cod liver oil is exhibited, after which a rapid cure results. This is true not only in the eczematous group but also in such diseases as ringworm and scabies. Again in the anemias of childhood iron and arsenic are often of no avail, whilst rapid recovery en-

sues upon the addition of fat to the dietary and attention to such matters as regularity in feeding, the cutting off of sweets, especially chocolates, between meals and the provision of abundance of fresh air in the dwelling. Another example of the special importance of associating dietetic with drug treatment, is afforded by the good results obtained in epilepsy, if meat, coffee, tea, spices and other nervous irritants are more or less entirely excluded, whilst at the same time sodium chloride is either diminished or entirely forbidden. By these means the necessary quantity of bromide may be very materially reduced, especially if a considerable part of the child's life is devoted to gentle but interesting exercise in the open air.

The treatment of the many nerve conditions met with in children, the result not of organic disease but rather of mental irritability, produced by the stress and strain to which the modern child is exposed, upon a still actively developing nervous system, presents a difficult problem. For the rich the solution is found in the provision of country quarters for the Summer, with only sufficient lessons to provide healthy mental occupation and for the rest a free outdoor life. Under these conditions the brain, relieved from the constant irritation caused by the incessant stimulation of the sense organs by the jarring noises of traffic, the garish colors in the shops and on the sign boards and the offensive smells of the gutter and the roadway, will become less active, or rather will have its activity more regularized and the general nutrition will be improved. For those who cannot afford to send their children out of the city, the open-air school provides perhaps the best substitute. At the same time it is of course necessary to remove any local source of irritation, such as is so frequently supplied by dental troubles, with constant septic absorption from the mouth and the production of dental dyspepsia; by refractive errors with consequent eye strain; or by adenoids or enlarged tonsils, which interfere with efficient respiration. With regard to these latter conditions, when they are not sufficiently bad to call for operation, or after they have been removed, it is important that breathing exercises should be regularly carried out night and morning. By their use not only will the general health and development of the child be helped forward, but slight conditions will be cured or recurrence prevented.

Generally speaking drugs should only be used in the chronic complaints of children when hygienic measures have either failed to cure, or in circumstances where they cannot be efficiently carried out. Children react readily to physical therapy and are often intolerant of drugs and the struggle to enforce administration often does more harm than the medicine does good. In acute diseases drugs should wherever possible be given in the form of suppositories, so as to avoid the nervous excitement resulting from an attempt to force a nauseous draught upon an unwilling subject. Children soon become accustomed to this mode of administration, though of course care must be taken not to give in this way drugs such as chloral, which will cause local pain or irritation. Other convenient methods of administering drugs in children are by inunction or by ionic medication, both of these having the advantage of avoiding the necessity of risking derangement of the sensitive digestive organs, with the consequent interference with the nutrition of the child. Ionic medication is especially valuable in certain skin diseases for whilst

by inunction with fatty media certain drugs are readily absorbed by the healthy skin, it is doubtful whether in diseased conditions of the epithelium, any appreciable amount of penetration occurs. Hypodermic injections should obviously never be given to children except in cases of urgent necessity, or when, as in the use of vaccines and sera, no other method is available or likely to be effective.

ON PASTEURIZED MILK AND ITS EFFECTS.

BY

RALPH VINCENT, M. D.,
Senior Physician and Director of the Research Laboratory, the Infants' Hospital, London, Eng.

When milk is heated at a temperature of 125°C. for 20 minutes it is, as a rule, sterile. All organisms "pathogenic" or otherwise are destroyed and the fluid will remain sterile provided it is especially protected from contaminations. Such milk is absolutely unfit for consumption. It is yellowish brown in colour and the chemical changes caused by the heat are so great that they can be recognized both by taste and smell.

Pasteurization is, in the strict sense of the term, merely a method of sterilization. Instead of the milk being heated under pressure for a comparatively short time, it is heated at boiling point for 30 minutes on three successive days. The net result is precisely the same as that obtained by sterilization under pressure and the chemical changes are the same in both cases.

In the medical world the term "pasteurization" is used in a very different sense, with the result that much confusion has arisen. Since it is now admitted by all unprejudiced physicians who have adequately studied the subject, that subjecting milk to a high temperature, gravely injures it as a food for infants, constant efforts have been made to obtain a method which will destroy "pathogenic" organisms without injuring the milk with regard to its chemical constitution and its nutritive properties. The study of medical "pasteurization" is not a little instructive. At first it is boiled milk, then the temperature is 180°F., then it is 167°F. Freeman first designed his well known pasteurizer to work at 167°F, but subsequently reduced the temperature to 155°F, as he found 167°F. was too high. The most recent development is "pasteurization" for 20 minutes at a temperature of 140° F.

All these different temperatures (and different exposures) produce different results in regard to the bacterial growth in the milk subsequent to pasteurization; they serve, incidentally to illustrate the difficulties of the bacteriologist called upon to give an account of the effects of pasteurization, for the effects vary in each case according to the precise method employed. A few degrees may absolutely determine the suppression of one organism and the growth of another.

It is, however, important to bear in mind certain facts:

1. Any method of pasteurization which effectually and certainly destroys the "pathogenic" organisms, also destroys the organisms typical of pure milk, e. g. the *Streptococcus lacticus* and the *Lacto bacillus*.

2. The bacterial growth occurring in milk, so pasteurized when incubated at blood-temperature is wholly different from the growth occurring in raw milk incubated at the same temperature.

A few instances may be cited illustrating the growth of bacteria in milk:

1. Pure raw milk incubated at 38° C. for about 8 hours. A luxuriant growth of the *Streptococcus lacticus* is generally found. As a rule this is seen in practically pure culture for the *Streptococcus lacticus* growing in raw milk is extremely potent in inhibiting the growth of all other organisms.

2. Milk heated at 170°F. for 10 minutes, cooled and then incubated at blood temperature for about 48 hours. The milk is generally stinking and a pure growing culture of the *Bacillus putrificus* will be found.

3. Milk heated at 190°F. for 3 minutes, and then incubated at blood temperature for about 48 hours. The curd is raised to the surface of the milk, and is "honeycombed" owing to the production of much gas after the "setting" of the curd. There is a strong smell of butyric acid which is present in considerable amount, and on bacteriological examinations a pure growing culture of the *Bacillus Enteritidis Sporogenes* is found.

4. The milk is maintained at boiling point for 5 minutes and is then incubated either at blood temperature or at about 80°F. for some 24 hours. There is a profuse growth of highly proteolytic organisms such as *Bacillus Subtilis, Bacillus Mesentericus Vulgarus, Bacillus Mesentericus* (7), etc.[1]

None of the organisms growing in pasteurized milk are capable of growing in raw milk or in the alimentary canal of an infant or child fed on raw milk. The *Streptococcus lacticus* is invariably present in breast milk as it is received by the infant. A specimen of human milk obtained under reasonably clean conditions always shows a plentiful growth of this organism when incubated for about 8 hours at blood temperature. In pure cow's milk practically no other organism is seen for the first 24 hours, so powerful is this micrococcus in preventing the development of other bacteria.

When pasteurized milk is given to an infant that has recently received raw milk, the organisms present in the pasteurized milk will fail to grow for the same reason that they fail to grow in raw milk. But when an infant is systematically fed on pasteurized milk, the danger of their development is always present for the true lactic bacteria are delicate and soon die out, so that a fresh supply of these lactic organisms is a specific requirement of the infant. When the action of these organisms fails, acute or chronic disorder develops.[1] In the alimentary canal the actual attack by the non-lactic organisms is frequently preceded by a "colon toxemia." Indeed, in many cases, the perverted action of the colon organisms would appear to be a necessary intermediate stage between the normal and the absolutely abnormal.

In order to comprehend the nature of "colon toxemia" it is necessary to bear in mind certain facts. The true lactic organisms are *fermentative* and they cannot attack the proteins. The *Streptococcus lacticus* cannot grow at all in peptone broth. It grows readily in milk and it grows most luxuriantly and most typically in raw milk. There is a striking difference between the growth of the *Streptococcus lacticus* in sterilized milk and in raw milk.

The colon organisms e. g. the *Bacillus coli communis* and the *Bacillus acidi lactici* are typically proteolytic organisms, but they will act as *fermentative* organisms when they cannot act proteolytically. They grow much more freely in peptone broth than they do in raw milk. In raw milk they fail to grow at all when the milk is

[1]For a fuller account of the changes from heating milk, illustrated by numerous photomicrographs *vide* the author's *Nutrition of the Infant*, 4th edition, London, 1913; also his *Acute Intestinal Toxemia in Infants*, London, 1911.

[1]For the experimental demonstration *vide* Section VI, *Acute Intestinal Toxemia in Infants.*

incubated at blood-temperature for the growth of the *Streptococcus lacticus* completely inhibit them.

When an infant or child is fed on pasteurized milk, the normal growth and action of the lactic organisms present in the alimentary canal are retarded. Coincident with this retardation of their active development, their dominance also fails and the proteolytic organisms begin to establish themselves in the small intestine, once this process begins the lactic organisms are rapidly overwhelmed.

While the colon organisms are usually the first to establish themselves, this is not always the case and even when the colon organisms have become established they may soon be compelled to give way to more virulent organisms.

In every case of serious alimentary disorder in an infant or child dealt with by the writer, bacteriological examinations are systematically made and the following cases are cited as typical of cases commonly seen.

1. A child, 6 years of age, suffering from acute colitis. The dejections contained much mucus and bright red blood. The whole colon was acutely tender. The constitutional condition, considering the severity of the local condition, was good. There was no drowsiness—an important point. The smell of the dejections (butyric acid), the severity of the local condition and the absence of "toxic" symptoms at once led the writer to suggest the *Bacillus Enteritidis Sporogenes*. In his laboratory this diagnosis was amply confirmed for this organism was found in nearly pure culture. The child was immediately treated with frequent doses of the *Streptococcus lacticus*, the strain employed being one exceptionally capable of combating the attacking organism.

The child made a rapid and complete recovery and was entirely free from those *sequelae* such as chronic colitis, which are so frequently seen after the acute illness has subsided.

2. An infant, 8 months, suffering from "acute enteritis." "Quite unable to take any form of milk." The writer was asked to see this case as, after everything had been tried and several consultations had been held, the gravest prognosis had been given. The bacteriological examination showed the *Bacillus putrificus* and the *Bacillus acidi lactici* to be the prominent organisms. The infant was treated with a modified *raw* milk and cultures of the *Streptococcus lacticus*. The symptoms rapidly subsided and in about a fortnight the infant was taking and digesting a mixture consisting of equal parts of milk and water with some added sugar.

3. A child, three years of age. Enlarged spleen. Enlarged liver. Pronounced anemia. No appetite. Great languor and weakness. Quite unable to walk and only able to stand when holding on to some support. She had been seen by many physicians and for some time the diagnosis had been "splenic anemia." it was a typical case of chronic colon toxemia. The child was ordered raw milk with water and milk sugar and a mixed culture consisting of *Streptococcus lacticus* and *Lacto-bacillus*.

In three days the child was hungry. She gradually made a complete recovery. This case is peculiarly interesting; for, a month or two ago, the child was brought to the writer because she had relapsed and the old symptoms were beginning to reappear. He was at first puzzled to account for this as the cultures had been suspended for more than 6 months. A return of the symptoms is not uncommon when the cultures are suspended at too early a date. But the normal lactic organisms had evidently become well established in this case and it was difficult to account for the breakdown, since the mother insisted that the child had always had fresh milk. Quite at the end of the consultation, it was ascertained that the family had come to town, they were previously living in the country. The mother was at once asked, "Then where are you getting the milk?" She replied by giving the name of a milk company that systematically pasteurizes all its

milk though it carefully conceals this fact from its customers.

The doctrine that an "unsafe" milk is converted into a "safe" milk by the process of pasteurization in one of the strangest doctrines that has ever been preached in the history of medicine. It is largely responsible for the dirty condition of the milk in England and other countries.

ON THE VALUE OF CITRATED WHOLE MILK IN INFANT FEEDING.

BY

FREDERICK LANGMEAD, M. D., F. R. C. P., London, Eng.,

Assistant Physician to the Hospital for Sick Children, Great Ormond Street; the Royal Free Hospital, and the Seamen's Hospital, Greenwich.

It is generally accepted that when weaning is necessary for any cause, cows' milk is the only practicable substitute in the great majority of cases. That it is not a perfect substitute is common knowledge. Under the circumstances it is only to be expected that at the hands of many workers, many modifications should have been attempted to overcome its natural defects. An infant's diet cannot be regulated by cast-iron rules, for there are some infants who will mature normally on almost any form of artificial food, despite its apparent unfitness. A few remain healthy and gain satisfactorily in weight, even on whole cows' milk, not modified in any way. The test by which a method of artificial feeding stands or falls is that it shall be found of greater value than, or at least as useful as others when used in ordinary cases. Exceptional children require exceptional feeding.

In spite of the work of the German school, which ascribes to the fats of cows' milk the chief difficulties met with in infant feeding, most English observers still hold that the protein is the greatest offender. Fat indigestion undoubtedly occurs, and that more frequently than was formerly supposed, but the firmness of the casein curd of cows' milk is still the most important difficulty to be combated.

A consideration of the differences between cows' milk and human milk suggests two obvious explanations of the greater toughness of the curd of cows' milk. One of these is the greater amount of protein and the greater proportion of casein to lactalbumin; the other is the excess of calcium salts. Until recently the former has monopolized the attention of the profession. To eliminate it, cows' milk has been diluted, thus diminishing the amount of casein, and reducing the size and, to a large extent, the density of the curd. A recognition of these truths has originated the method of feeding infants by diluted cows' milk, a device which, of all others, is most in vogue at the present day. Little heed has been paid to the other explanation of the greater density of the cows' milk curd, namely the larger proportion of calcium salts. Bunge gives the proportion of lime salts in human milk as .03 per cent. and in cows' milk as .17 per cent. Remembering the effect which calcium salts produce on coagulation, we have here a ready explanation of the tough curd. The question which naturally follows is: "Can the excess of calcium salts be eliminated?" Sir Almroth Wright in 1893 showed that the density of the curd of cows' milk can be modified profoundly by the addition of sodium citrate. This can be demonstrated by a simple experiment. Let 3 test tubes

be taken and an equal part of cows' milk be poured into each. Slightly acidify the milk in each tube. Into test tube No. 1 drop a measured quantity of rennet; to the milk in test tube No. 2 add the rennet and also sodium citrate in the proportion of 2 grains to the ounce of milk; and into test tube No. 3 in addition to the rennet, add sodium citrate in the proportion of 5 grains to the ounce of milk. Incubate until coagulation is completed and examine the tubes. No. 1 will contain a dense, tough shreddy curd; No. 2 will contain a soft flocculent curd, easily pulping under the finger and closely resembling that of human milk; No. 3 will contain little or no curd at all. Sir Almroth Wright therefore suggested that cows' milk to which sodium citrate in the proportion of 2 grains to the ounce has been added, might afford a valuable means of feeding infants.

To Dr. F. J. Poynton the profession is indebted for putting this proposal to a practical test. His results, published in the *Lancet* in 1904, were so encouraging that citrated milk has now become widely used and recognized as a valuable method of infant feeding. This observer however, did not adhere closely to the original suggestion, but combined citration with dilution, and added one grain of sodium citrate only to the ounce of milk.

The advantages of undiluted milk appeared to be so great that I determined to give whole citrated milk a thorough trial, and now, after more than five years' observation of a large number of infants who have been fed in this way, I believe it to be the best form of artificial feeding in all but exceptional cases.

The technique is simplicity itself. Sodium citrate is readily soluble in water, and solutions can be prepared of the strength required. The plan which I adopt is to order a solution of grs. X to the dr. 5i of this solution is added to each quarter of a pint of milk thus giving the 2 grains to the ounce of milk which is required. It may be added to the milk when it is first delivered in the morning, or to each feed as it is prepared. I always first bring the milk to the boil, or in other words "scald it," not only because this renders it much safer from the point of view of infection, but also because the curd of citrated milk is softer in consequence. A pellicle of mould may occasionally grow on the surface of the solution if it is kept in a warm place, but this may be obviated by the addition of a few drops of chloroform water. Sodium citrate is also sold in tablet form, one or more of the tablets being crushed and added to the milk, but I have found that the solution is the more reliable preparation.

Citrated whole milk may be begun when the baby is two weeks old. Healthy infants do not require feeding more often than every 3 hours during the day, and once during the night. For the first two months the hours of feeding may be 6 a. m., 9 a. m., 12 noon, 3 p. m., 6 p. m., 9 p. m., and one feed by night at 2 a. m. After 2 months five feeds per day are sufficient, and the night feed may be omitted. These feeds may be at 6 a. m., 10 a. m., 2 p. m., 6 p. m., and 10 p. m.

With regard to quantities, clearly the amount will be less than if the milk were given diluted. No hard and fast rule can be made as to the frequency or size of the feeds, since so much depends upon the vigor of each particular child, and the proportion of its weight to its age, and I do not propose to give a table of amounts, being convinced that it would not only be

useless, but possibly dangerous. Roughly speaking, for the second fortnight of life about ¾ of an ounce is sufficient; during the second month 1½ ounces; during the 3rd month 2½ ounces; during the 4th month 3½ ounces; during the 5th and 6th months 4½ to 5 ounces. These figures must be taken as only roughly approximate. Some infants will take more with benefit; others need to be treated as though of a younger age. The surest guides are the baby's appetite, the weight chart, the state of the bowel movements, and the general progress.

I have had little experience with citrated milk during the first two weeks of life, and although cognizant of several instances where citrated undiluted milk has proved satisfactory even at this early age, I should not be disposed to use it. In the breast, as Dr. Eric Pritchard has pointed out, "a transition from colostrum to coagulable milk is relatively slow; it may be 10 days or more before the mammary secretion assumes the characters of the milk. During this time the stomach has been functionally developing, acquiring tolerance to the presence of coagulated casein and learning to peptonise or liquefy the clot soon after its formation. There can be no evasion or short circuiting of this route." I am informed by a doctor who has had charge of infants in a London infirmary, that while several infants flourish on whole citrated milk almost from birth, others fail to do so. The material, however, with which he has had to deal has been of the poorest sort. Having in view the nature of the breast secretion at this period, the safest plan is to give whey gradually strengthened by citrated milk during the first fortnight or 3 weeks rather than risk provoking early indigestion. The objections to citrated whole milk at this period apply of course, with greater weight to milk which has been simply diluted.

At from four to five months the citration may be diminished to one grain to the ounce of milk and from five to six months omitted altogether.

Advantages.—Whole milk, if it can be given in a digestible form, has many obvious advantages. One of these is the small volume of the feed as compared with diluted milk. There is no doubt that there are many cases of indigestion induced, not by the faulty composition of the meal, but by its excessive bulk. We cannot dilute the milk without at the same time diluting the gastric juice; moreover, by distending the stomach, we place its musculature at a disadvantage and, by producing defective motility, militate against efficient mixing of its contents, and so hamper digestion. Again, if the milk be diluted, it becomes necessary to add cream in order to bring the fat content up to that of human milk. This forms a serious objection to diluted milk, for cream is expensive, variable in its constitution, often very rich in microorganisms, and in the Summer months almost always contains some form of preservative. Any form of cream is beyond the means of the majority of hospital patients, whilst sterilized cream, the only safe kind in the summer, is still less readily procurable. Another advantage of whole milk feeding is its simplicity. The different degrees of dilution at different ages and consequently the varying amounts of cream to be added, makes feeding with diluted milk a difficult process for the average mother. This is avoided if whole milk is used. Little manipulation is required, a matter of considerable importance from the point of view of contamina-

tion, especially in the houses of the poor. A point of less moment is an absence of that constant leaking of the napkins, which occurs when diluted milk is used.

Limitations and Disadvantages.—It is not claimed for whole citrated milk that it is a panacea for all the digestive disturbances to which infants are prone. There are certain very exceptional children who from earliest infancy cannot take milk in any form. To them milk seems to act as a poison, producing symptoms of serious toxemia. There are others, a small proportion I believe, whose powers of digesting the fats of cows' milk are restricted. In these cases citrated, whole milk is contra-indicated, for what these infants need is reduction of fat-content. The discovery that the curds passed by the bowel consist largely of fats and soaps, is not necessarily an evidence that fat indigestion is the important factor to be treated, for if the protein coagulum be tough and firm, the fat globules are entangled in its meshes, much as blood corpuscles in a thrombus, and in this way the fat splitting ferments are placed at a disadvantage, render the curd soft and flocculent, and the fatty pellets will disappear from the motions. Milk in any form is unsuitable for the epidemic diarrhea of the Summer months. There are also some few babies who may truly be said to be born to die. Without presenting any gross lesions, they resist all methods of feeding and gradually sink from inanition. These subjects of "abiotrophy" are often born at the end of long families, or when the mother is getting on in years, and are not endowed with sufficient vital force to live. Failures in feeding by this method, as by any other, are due to be met with too, if organic disease, such as congenital syphilis or pyloric stenosis, be present.

One of the disadvantages which are said to attend undiluted citrated milk is that it engenders constipation. I have not been able to convince myself that this is the case, although it is true that the motions are more bulky. Nearly all the babies whom I have watched who have suffered from constipation were similarly affected before the citrated milk was begun. Urticaria and erythematous rashes have been produced when sodium citrate has been given in excess, but never, in my experience, when used in the proportions here recommended. A rational objection to whole milk is that more protein is given than is present in human milk, and therefore more than the infant needs. One can only say that it does no harm when the curd difficulty is overcome by citration. The size of the motions indicates that some of this is passed, but I have no data as to the ratio between the amount of protein utilized and that excreted, nor how this compares with the same ratio when diluted milk is given.

Results.—The progress in weight and strength of the infants fed by this method fully justifies the claims which have been made for it. I have now watched some hundreds of infants reared on citrated whole milk, and am convinced of its value. The failures are surprisingly few, and very rarely has another method been substituted with advantage. On the other hand, time and again I have replaced other methods by it with success. Rickets, gastric dilatation, general hypotonia and that puffy and pasty appearance so commonly seen in babies fed on diluted milk do not develop.

On the contrary the muscles are particularly strong and firm.

Another occasion for citrated milk is at the time of weaning in the case of children who have been breast-fed. It may be substituted gradually for the breast, first using 2 grains to the ounce of milk, and then one. The sodium citrate may afterwards be omitted. Such a gradual transition from breast milk to cows' milk safeguards the baby from the dangers to which a sudden change subjects it.

To test its efficacy for children who are undersized and losing weight by other methods of feeding I have performed the following experiment: Marasmic infants were taken consecutively. Each was weighed on the first examination and again a week later, no alteration being made in the diet. At the end of the week they had lost weight. Whole citrated milk was substituted and subsequently their weights were charted at first weekly, afterwards every 2 or 3 weeks. In this way 80 consecutive cases of marasmic infants were studied.

When first seen 30 were being fed on cows' milk and barley water, and 4 on cows' milk and boiled water. One was receiving milk, lime water and cream. In one case, the milk was being peptonized, and in another humanized. Seven were being fed on condensed milk, in one case supplemented by sanatogen, in another by Empress wheaten flour. Patent foods were being given in eleven instances and had previously been given in seven more. Altogether 17 varieties of patent foods had been tried in these cases. In one instance albumen water only was being used. Twenty-one were losing weight on the breast, in one case supplemented by condensed milk, in another by nursery biscuits.

The poor state of nutrition of the cases when first seen could be gauged best by the weights at the time. Four weighed under 5 pounds, their ages being 3, 4, 8 and 10 weeks respectively. Ten others weighed 6 pounds or under, their ages varying from 5 weeks to 3 months. The lightest baby weighed 4 pounds and was 3 weeks old. All weighed below the average and had been wasting when first given whole citrated milk. Three, according to the mothers' statements were brought because they were given up by their doctors, and in one case a death certificate had already been promised.

The results were very gratifying. All gained in weight. This was especially surprising seeing that previously all had wasted and on very many kinds of foods. I heard of only one fatality. This was that of a very ill-developed, undersized child who first attended, age 2 months and weighing 8 pounds and 2 ounces. For fifteen weeks he gained an average of 3.53 ounces weekly, but died of epidemic diarrhea in September. Other members of the family had diarrhea also. In one case the citrated whole milk was supplanted by another preparation. According to the mother it was being pumped up whilst condensed milk was retained, and as the child was not progressing I allowed the condensed milk to be given temporarily and afterward lost sight of the patient. It is important that the presence of thrush was coincident with the want of progress.

In a third case the citrated milk was given as a means of assisting breast feeding, and after a month was unnecessary. Three were the subjects of rickets. One of these had rickets before coming under treatment; one had as well as rickets, congenital syphilis, hernia, phimosis and bronchitis. The remaining 74 cases were well and healthy when last seen. Five de-

veloped diarrhea and vomiting in the Summer months, from which they recovered. There was no case of gastrointestinal disturbance apart from zymotic diarrhea sufficiently severe to cause loss of weight.

OBSERVATIONS ON BREAST-FEEDING.

BY

DAVID FORSYTH, M. D., D. Sc., (Lond.)
F. R. C. P. (Lond.)
Physician to the Evelina Hospital for Sick Children; Physician to Out-Patients Charing Cross Hospital.
London, Eng.

Compared with the great strides that have been taken in the last half-century in artificial methods of feeding, not a great deal has been done to extend our control over nature's method. Even the quantity of human milk needed by an infant is still uncertain, though the opinion is sometimes heard that the whole matter can safely be left to nature—an attitude hardly to be found in other spheres of scientific inquiry. Certain it is that nature often conducts the business only indifferently well and sometimes very badly; yet, on these occasions, what trustworthy remedy is available? With no means of increasing or modifying the natural supply, bottle-feeding is the first and only resource when an infant fails to thrive on breast-milk.

What little is accurately known of the subject is largely drawn from a comparatively few observations on the consumption of breast-milk. Most of these, however, are merely estimates of the size of single feeds—the so-called "test-meals"—and the daily total is calculated (with what accuracy will be considered later) by multiplying the size of the test-meal by the number of the daily feeds. In only a few cases have the observations been continued over any length of time, the most systematic attempt on this larger scale having been made in 1911, by Pritchard, Carter and Pitt,[1] who estimated all the feeds of a number of babies in St. Marylebone Workhouse until the 21st day after birth; and their results stand as a guide to breast-feeding among the poorest classes. But, as they are careful to point out, their figures must not be taken as applicable to a better social class. Yet, so far as I am aware, no continuous observations on infants of this class have been made; no doubt the practical difficulties are considerable, since the experiment necessitates weighing a baby some score of times every day and at all hours of the day and night—an undertaking which not every mother would approve of.

In these circumstances, the following observations which I made four years ago would seem worth placing on record. They comprise a continuous estimate of the consumption of breast-milk by an infant of the better class from the 5th day after birth, when the supply of maternal milk began, until the 49th day, when the child was removed from London. No other nourishment was given, and the mother had every advantage in the way of food, nursing, etc., which is customarily available for those whose circumstances are easy.

During the period of the experiment 413 breast-feeds were given, the daily number varying from 7 to 11 and averaging 9. Immediately before each meal the infant was put in the scales and again immediately after, except on a few occasions when for one reason or another, no record was made. Altogether, in the seven weeks he was weighed 799 times. A special balance registering up to 20 kilos and turning

[1] See their paper (*Lancet*, 1911, II, p. 677) for such references as are to be found.

at 5 grms. was used, the records at first being in English but subsequently in metric measure.

To begin with a summary of the results covering the whole period, the total consumption of milk from first to last was just under 24 litres (2 galls. 5 qts.). If the composition of human milk be taken as 12.7 parts solid per centum, these 24 litres will have contained 3.048 kilos (6 lbs. 11 ozs.) of sugar, fat, protein and salts; and, on the foundation of this nourishment (plus oxygen, of course) the child built up an additional body-weight of 1.025 kilos (2 lbs. 4 ozs.)—i. e. from 3.685 kilos (8 lbs., 2 ozs.) to 4.710 kilos (10 lbs., 6 ozs.).

The amount of milk consumed week by week is set out in the following table, the last column showing the daily average in each week.

TABLE 1.

Week	Total Milk	Daily Average
1[1]	750 cc. (26½ ozs)	250 cc. (9 ozs)
2	3620 cc. (128 ozs)	517 cc. (18 ozs)
3	3025 cc. (106 ozs)	461 cc. (15 ozs)
4	3290 cc. (116 ozs)	470 cc. (16½ ozs)
5	4305 cc. (152 ozs)	615 cc. (22 ozs)
6	4215 cc. (149 ozs)	602 cc. (21 ozs)
7	4595 cc. (162 ozs)	685 cc. (23 ozs)

[1] 3 days only.

With regard to these averages it is necessary to add that the actual daily consumption by no means always lay near the average, the difference between the largest and smallest daily totals in any given week varying considerably. Thus, in the 2nd week this variation was from 380 c.c. (13½ ozs.) to 600 c.c. (21 ozs.), and in the 3rd week from 420 c.c. (15½ ozs.) to 495 c.c. (17½ ozs.). In the next week it reached its maximum—a difference of 60%—as the following figures show:

TABLE 2.

DAILY BREAST-MILK IN 4TH WEEK.

Day	Quantity
22	385 cc. (13½ ozs)
23	355 cc. (12½ ozs)
24	540 cc. (19 ozs)
25	425 cc. (15 ozs)
26	570 cc. (20 ozs)
27	425 cc. (18½ ozs)
28	480 cc. (17 ozs)

In each of the 4th and 5th weeks, however, the days were practically alike, not a 5% difference between them, but in the final week again they ranged from 640 c. c. (22½ ozs.) to 730 c. c. (26 ozs.)—a difference of 13%. It will be observed, however, from the annexed chart that, in spite of these differences, the body-weight pursued its steady rise.

To pass next to the individual foods, the average size of these in each week was as follows:

TABLE 3.

Week	Average Size of Feed
1	28 cc. (1 oz)
2	57 cc. (2 ozs)
3	46 cc. (1¾ ozs)
4	46 cc. (1¾ ozs)
5	66 cc. (2¼ ozs)
6	65 cc. (2¼ ozs)
7	77 cc. (2¾ ozs)

But here again the actual feeds varied very widely, and this although both breasts were never given at one time. The largest and smallest meals in each week are recorded in the next table.

Week	Largest Feed	Smallest Feed
1	55 cc. (2 ozs)	7 cc. (¼ oz)
2	125 cc. (4½ ozs)	7 cc. (¼ oz)
3	125 cc. (4½ ozs)	7 cc. (¼ oz)
4	100 cc. (3½ ozs)	15 cc. (½ oz)
5	100 cc. (3½ ozs)	30 cc. (1 oz)
6	110 cc. (4 ozs)	40 cc. (1½ oz)
7	185 cc. 6½ ozs)	35 cc. (1¼ oz)

So large a feed in the second week as 125 c. c was unexpected, but it was registered twice in that week—once on the 10th day and again on the 13th—while on the 11th a feed, nearly as large, of 110 c. c. (4 oz.) was taken. Similarly, in the 3rd week a feed of 125 c. c. was taken on the 18th day, and one of 110 c. c. on the 20th. These figures are suggestive when contrasted with the reputed capacity of an infant's stomach; thus it is commonly held that the size of a bottle-feed in the second week should not exceed 50 c. c. (¾ oz.), and in the 3rd week 55 c. c. (2 oz.). And yet, in the case under observation, 29 of the 66 second-week feeds were 2 ozs. and over (12 of them being 3 oz. and over), and 19 of the 72 third-week foods were 2½ ozs. and over (7 being 3½ ozs. and over).

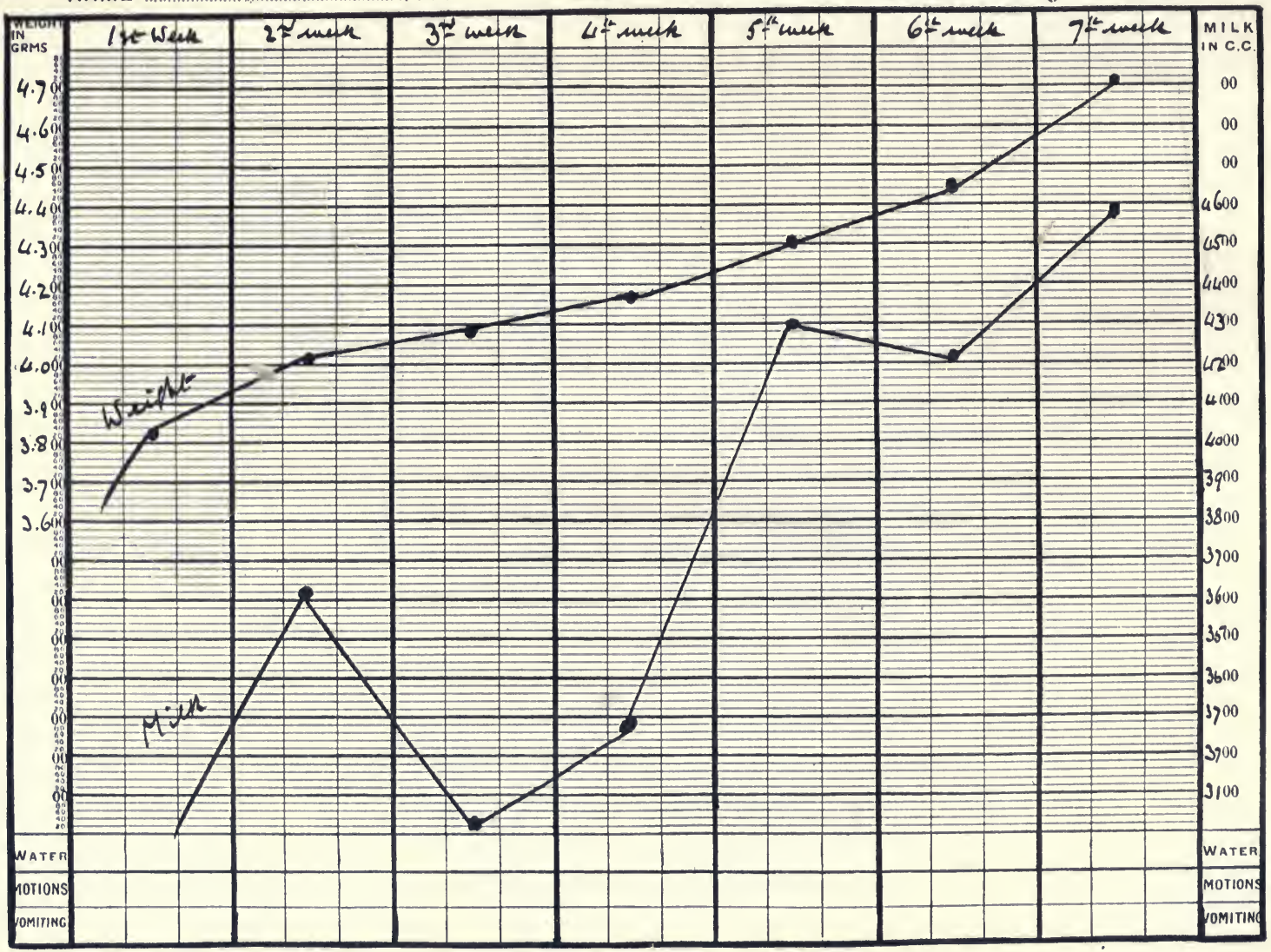


Chart showing consumption of milk and rise in body weight.

Another interesting fact is brought out by the experiment. The same breast, after approximately equal periods of rest, yielded very unequal quantities of secretion; indeed this was the rule rather than the exception. To give two instances from among many. On the 32nd day the same breast was given at 2.45 a. m., 8 a. m., 12.30 p. m., 5.30 p. m. and 10 p. m.—after intervals of 4, 5¼, 4½, 5 and 4½ hours—but the subsequent feeds were 55 c. c. (2 ozs.), 30 c. c. (1 oz.), 85 c. c. (3 ozs.), 100 c. c. (3½ ozs.) and 55 c. c. (2 ozs.). Again, on the 43rd day, one breast was given at 3 a. m., 8 a. m., 12.30 p. m., 4.45 p. m., and 8.30 p. m.—the intervals being 4, 5, 4½ and 3¾ hours—and yet the feeds were 60 c. c. (2 ozs.), 85 c. c. (3 ozs.), 145 c. c. (4 ozs.), 40 c. c. (1½ ozs.) and 55 c. c. (2 ozs.). For all this, however, it was generally found that, roughly, one-half the daily milk came from each breast. Nevertheless, on some days again, one gland would be more than twice as active as the other—on the 15th day, for example, the separate totals were 285 c. c. (10 ozs.) and 135 c. c. (4¾ ozs.).

II.

Perhaps the most notable feature of these observations is the variability in the consumption of milk. How to account for it is not easy. No diurnal cycle of activity of the mammary glands could be traced, the biggest and smallest feeds occurring at any hour of the day or night—a fact which also excludes such periodic maternal influences as meals, sleep and fatigue. On the other hand, it is no easier to place the responsibility on the child, though it might be suggested that, being hungrier at one time than another, he was able, by the vigor of his sucking, to regulate the supply according to his needs. In favour of this it was noticed that the contented sigh of repletion was no less frequent after a light meal than after a heavy—i. e., that the small feeds were all that was wanted at the time—and he was practically always stuporous from his draught of milk when put in the scale-pan again. Against it, however, is the fact that a full meal took no longer than a scanty, which seems to show that at one time the supply was more abundant than at another. Moreover, he occasionally showed temper soon after being placed at the breast, grunting and biting the nipple viciously, from which it might be inferred that at these times he found his cupboard barer than he liked; unfortunately no notes were made on the relation between this show of dissatisfaction and the size of the subsequent feed.

On the whole, my impression is that the secretion, though becoming ampler with the growth of the child and to this extent, therefore, being regulated by the demand, varied from day to day and from hour to hour under the influence of maternal factors. But what these factors were I did not discover, nor how to control them; and this, I am inclined to think, is probably the experience of most who have attempted to regulate the secretion of milk by dieting the mother. Whether she is fed generously or moderately, drinks much milk or little, takes or abstains from oatmeal-stout and other reputed galactogogues, no reasonably scientific proof is yet forthcoming that these measures affect the activity of the mammary glands. It is probable, however, that, if the observations here recorded were supplemented by others, light would gradually be thrown on this practically important but scientifically neglected aspect of physiology.

Just one point more. What is the value of a single test-meal as an index of the total daily consumption? In the present case only a small minority of the feeds were of the average size as calculated at the end of the day: in other words, any

of the majority of them, if accepted as a test-meal, would, on being multiplied up, have shown too high or too low a daily total, and a large number of them would have given altogether misleading results. To take a day at random—the 38th. The 10 a. m. feed was 40 c. c. (1½ ozs.), which, multiplied by 9, the number of feeds on that day, gives the day's total as 360 c. c. (13½ ozs.); the 5 p. m. feed, however, was 85 c. c. (3 ozs.) giving a total of 765 c. c. (27 ozs.). In point of fact the actual consumption was 575 c. c (20 ozs.). If this example is illustrative of other cases, so frequent a liability to an error so considerable must rob the test-meal of its practical value. I think that the observations must be continued for at least 24 hours on end, and ought to cover several days together. If this is done, the results will be informing and trustworthy.

THE SCOPE OF SANITARY WORK IN THE HOME.

BY

CHAS. A. HODGETTS, M. D., D. P. H., L. R. C. P. London, F. R. San. I.
Medical Adviser, Commission of Conservation.

The sanitarian is struck with the great activity of social workers in all that relates to the home and its inmates; the work is mainly voluntary, and its importance is urged largely upon moral and social grounds. From the fact of such universal activity in this field by sociologists I have been led to enquire how much of this is due to failure on the part of sanitarians to carry on preventive work in the home? It is quite true that in the case of diseases which are communicable, we have done much, and the efforts put forth against the spread of tuberculosis have evidenced the fact that for a long period of time the home itself was almost entirely neglected and that greater progress has been made in the matter of sanitation of the barn and live stock than of the home and its inmates. Of course, it will be argued, the one is a financial proposition involving dollars and cents to the farmer, the other is simply a social question and not at all to be considered by the state. The politician recognizes the value of cattle, and is willing to protect them even by strict legislative enactment, but man—not to mention women and children—is only of interest from the standpoint of his being a political shuttlecock, and his rights must not be interfered with.

It is perhaps a fault of sanitarians that they have not been aggressive enough. I believe we have not gone down to the people and striven by every means in our power to raise them by educational methods to the higher health standard which we conceive to be essential for our physical welfare.

If the sanitarian wishes to succeed he must also be a utilitarian and must convince the people that to be truly happy they must be healthy—and, if not healthy they can not possibly expect to be happy.

As health officers we have been, and still are, wrestling with what may be looked upon as the grosser elements that go to make up the science of preventive medicine. The average citizen of Canada today associates our official duties with the care of small-pox, the placarding of a house for scarlet fever, or the abatement of a nuisance in his neighbor's back-yard. As a ratepayer he believes this is what he is paying for. I have frequently known it to be the magnificent "salary" (?) of

"twenty-five dollars a year"—with the majority of ratepayers it is a business proposition—he considers the M. O. H. of less importance than the village constable and therefore the professional services are gauged by the lesser standard.

Just drop into the office of a whole-time M. O. H.—listen to the 'phone calls or rather his replies thereto—and you will soon be convinced that much of even this official's time is taken up with just such matters, notwithstanding the fact that he has a competent officer at the head of both of these branches of his department.

Turning to the public press, we find indications, even there, that the higher branches of public health work in this province should be taken out of the hands of sanitarians who have a medical training and handed over to sanitary engineers. This is a grievous error which can only be accounted for by reason of the limited knowledge of these editors of what are the fundamental principles of hygiene and what are the duties of a sanitarian and how best the office of M. O. H. can be filled. There is a limitation to be placed upon the efficiency of a sanitary engineer, but the field of the trained hygienist is illimitable when we view the whole range of the science. Do not mistake me, I place a high value upon the work that can be accomplished for the health of our people by the sanitary engineer, but he must co-ordinate his work and co-operate with—be directed by, if you want the best results—the trained sanitarian.

In short, sanitary engineering is but a part and a small part of the science in which we are engaged. It would be more sane for these papers to agitate that the skilled town planner and housing expert should have charge of the work in line with the suggestion just referred to—for in these branches we find problems more difficult, because more intricate and varied, and all having an important bearing on the health of the child, the mother and the father.

It is to the lasting credit of the Rt. Hon. John Burns, President of the Local Government Board of Great Britain, that, in dealing with the housing question in 1909, he made the M. O. H. the one municipal officer upon whom the work pivoted in that country. Why did he do so? Because he realized that the health of a nation was involved in the question and greater and better achievements were possible under a qualified health officer than in any other way.

Coming home to our own fair province let us note for a moment the activities at work all having for their common object the betterment of the environments of our population both rural and urban.

These may be classified as (a) voluntary, and (b) municipal. The former are being carried on with more or less activity by a small army of voluntary social workers. In some instances they are in part supported by municipal aid which is stimulated often by a provincial grant. Thus far the necessity for the work and the good accomplished is recognized by the bodies corporate. In considering the aid given it will be found that progress has been made by these bodies paying for a whole time officer who directs and in a manner controls the activities of the associations of social workers. The character of most of this work falls directly under the purview of what is known as sanitary science or hygiene, but up to the present this fact has not been fully realized, or, if it has, it has been lost sight of because of its being hailed as work for the improvement of the

morals of the people. Advance the same or better measures on the ground that the disease will be prevented, that a higher standard of health and longer life will be assured, that physically young Canada will be benefited, and then your difficulties as health workers begin. The problems are bereft of their sentimental colourings and no matter if the public in the aggregate pay more and achieve less the work will proceed on the present basis.

In regard to the second class, the municipal, it is little to be wondered that slow progress has been made, for, as a rule, the average municipal councilor is quite willing to vote a small sum to assist the social workers in carrying on work which in the fondness of their heart they know will benefit and uplift a particular class of the community in whom they are interested. But ask those same councilors to take over the work and do it upon up-to-date lines and at the public charge, then it is a different question altogether.

Take just one concrete example which relates to health work which in the highest sense is preventive, viz., that relating to child hygiene. In Canadian cities health authorities are too often satisfied with a partnership as between the municipality and the social workers. But what is the method adopted in New York City? In August of 1908 the Department of Health organized the Division of Child Hygiene. Its force at the present time numbers 154 physicians, 265 trained nurses, 55 nurses' assistants, 30 clerks and typists and 23 helpers, all employed throughout the year, while this staff is augmented during the months from May 1st to Oct. 31st by 56 trained nurses and 55 nurses' assistants.

The object of this Division is to supervise and control the health of children. Its functions include:

(1) The supervision and control of medicines.

(2) The instruction of mothers in the care of babies by (a) District visiting, (b) Infants' milk stations, (c) Mothers' conferences, (d) Little mothers' leagues.

(3) The supervision of foundling babies boarded in private homes.

(4) The sanitary supervision and control of day nurseries and institutions for dependent children.

(5) The medical inspection and examination of school children.

(6) Vaccination of school children.

(7) The issuing of employment certificates to children of legal age.

Here, we have outlined a comprehensive scheme of one division of a city health department—here, the control, direction and elaboration of much that appertains to the child itself is in the hands of the medical officer of health. It does not altogether eliminate the social worker, but who will say that the scheme is not much better than in the case where charitable organizations are alone engaged? Under such a scheme as outlined there can be no duplication and efficiency is written in bold characters all over it—efficiency which spells the best results at the minimum cost.

Let us turn now to the province in which our work is carried on. It is now possible, under the provisions of the Public Health Act, 1912, for health authorities to extend their work into the cubical contents of any building, be it a shack or a palatial tenement. Indeed we may go further and say that it is part of our duty as health officers to do so. The Provincial Board of Health

and the Government of Ontario are to be congratulated upon this great forward movement, which must prove in the near future, if "activity" is the slogan of every local board of health in the province, of such untold benefit that we will all be surprised at the uplift which will take place in health, happiness, morals and physical improvement of the people.

It is quite true that there is no Act in force specifically dealing with the housing question but sufficient will be found in the Public Health Act, to bring about results in improved home sanitation if the powers therein contained are but further elaborated by the Provincial Board in the way of general regulations, which will accomplish more than an imperfect Housing Act.

For instance, the Provincial Board of Health has the power to make regulations for:

(Sec. 8.) (a) The prevention or mitigation of disease.

(c) The removal of nuisances and unsanitary conditions.

(h) The inspection of premises and the directing of the cleansing, etc., of the same.

(i) The entering and inspection of any premises used for human habitation where conditions exist which render the inhabitants liable to disease, and further "for directing the alteration or destruction of any such building," if unfit for habitation.

(j) For preventing overcrowding.

(p) A general power whereby regulations may be made on "any other matter which, in the opinion of the Board, the general health of the inhabitants of the Province or of any locality may require."

These powers are all the stronger in view of the fact that the definition of a nuisance is stated definitely in the act in Sec. 73 and 74 to mean:—

"Any condition existing in any locality which is or may become injurious or dangerous to health or prevent or hinder in any manner the suppression of disease, shall be deemed a nuisance within the meaning of this Act. (New)" or "(a) Any premises or part thereof so constructed or in such a state as to be injurious or dangerous to health."

It must also be noted that it is the duty of the Provincial Board, under Sec. 6 and 8 to:—

"(a) Make investigations and enquiries respecting the causes of disease and mortality in Ontario or in any part thereof.

"(d) Determine whether the existing condition of any premises or of any street, or public place, or the method of manufacture or business process, or the disposal of sewage, trade or other waste, garbage or excrementitious matter is a nuisance or injurious to health.

"(g) Enter into and go upon any premises in the exercise of any power or the performance of any duty under this Act, and make such orders and give such directions with regard to the structural alteration of the premises or with respect to any other matter as the Board may deem advisable in the interests of the public health. R. S. O., 1897, c. 248, ss. 9, part 10 Amended."

And further the same board has the power (under Sec. 7) to investigate under oath as to unsanitary conditions and nuisances, and order their removal or abatement.

Surely with these powers, together with the statutory definition of a nuisance, there is before the Health authorities of this province a grand opportunity to make tremendous strides in the realm of hygiene of the home, which if properly developed and worked out, must result in municipal authorities doing in a systematic manner and with trained officers, work which up to the present has been carried on here

and there by philanthropic and social workers and others.

As most of the detail work in home sanitation must necessarily fall upon the staff of the M. O. H., it may be pointed out, very briefly, that the Act clearly lays it down (Sec. 75) as part of that officer's duties that he shall have a regular inspection to prevent nuisances or abate any existing nuisance. Having in view that one definition of a nuisance is "any premises or part thereof so constructed or in such a state as to be injurious or dangerous to health," what opportunities has not the M. O. H. as a result of the statutory powers for the examination of premises under Sections 76 to 80 inclusive and Sections 86 and 87 which relate particularly to lodging houses, tenements and laundries?

The latter sections make it possible for the health officer to publicly condemn in a most forcible manner by placard any habitation either unfit for human beings or dangerous to health. This is a veto power over usury and greed which should be used after careful, and if necessary, personal inspection by the M. O. H. himself.

In special cases where considerations of difficulty are involved the M. O. H. has recourse to the strong arm of the Provincial Board—Sec. 81—and in cases where the M. O. H. is not backed up by the local board, he is assured by Sec. 34 that, if the case is a good one, the Provincial Board will support him and so carry out the good work he requires.

It must be noted that much elasticity exists in respect to the details of sanitary inspection under the Act and the regulations as contained in Schedule B. by reason of Sec. 114, ss. 2. Special circumstances can be dealt with by municipal by-laws, which, however, must be approved of by the Provincial Board; and so difficulties existing in our large centres and perhaps not to be found in towns or villages can be met, and dealt with, by the local health authorities without being dependent, as we have been in the past, upon local organizations to undo what the body corporate should have prevented.

Many of the evils which arise from insanitary home conditions, many of the diseases incident to child life due to unhealthy environment and improper feeding can and should be dealt with along preventive lines, and the work should be directed and controlled by the Health authorities, whether they be Municipal, Provincial or Federal.

THE SIPHON TREATMENT OF EMPYEMA IN INFANTS AND YOUNG CHILDREN COMPARED WITH OTHER MEASURES—A STUDY OF 154 CASES.

BY

L. EMMETT HOLT, M. D.,
Professor of Diseases of Children, Columbia University, New York; Physician to the Babies' Hospital, New York City.

The age limit for patients admitted to the Babies' Hospital (under three years) affords rather exceptional opportunities for the study of empyema in infants and young children. Over this age the prognosis is usually good under any form of treatment which insures free drainage. Most of the deaths in acute empyema in the older group of children are due to complications, very few to the disease itself. Not so in the case of infants. Like pneumonia it shows its highest mortality

during the first year of life and death is most frequently the direct result of the disease. Since cases of empyema so generally do well if the patients are over three years old, and since the disease has such a high mortality in infants, it follows that the greatest problem in the treatment of empyema is its management in the latter class of patients. Especially is this true since it is so very common during the first two years of life.

The class of children admitted to the Babies' Hospital with acute disease is much better than is found in most infant homes or foundling asylums. The majority of those applying are of a fairly healthy type. Experience in the Hospital therefore represents pretty accurately what occurs among young children generally, except possibly in the best sort of private practice.

This paper is based upon our experience in this institution during a period covering a little more than seven years, and comprises the results of 154 cases of empyema. For the tabulation of these cases I am indebted to Dr. Henry E. Utter, member of the house staff at the Babies' Hospital. Practically all of these were acute cases and either developed in the hospital in the course of acute pneumonia, or were admitted with empyema while the disease was still recent. Of the 154 cases, 104 occurred in males and 50 in females; a surprising difference and one for which no adequate explanation has yet been given.

The two sides were involved with nearly the same frequency, there being 76 of the left side and 75 of the right, while in three cases both sides were affected, though in no case precisely simultaneously. Only one of these double cases terminated in recovery.

In the following table are given the organisms with which the inflammation was associated, and the mortality with each variety:

TABLE I.

BACTERIOLOGY OF 154 CASES OF EMPYEMA.

Pneumococcus	77 cases;	died, 43;	mortality, 56 per cent.
Streptococcus	24 cases;	died, 19;	mortality, 79 per cent.
Staphylococcus	12 cases;	died, 6;	mortality, 50 per cent.
Influenza bacillus	1 case;	died, 0;	mortality, 0 per cent.
Tubercle bacillus	1 case;	died, 0;	mortality, 0 per cent.
Mixed infections:			
Pneumococcus and staphylococcus	7 cases;	died, 6;	mortality, 62 per cent.
Pneumococcus and streptococcus	5 cases;	died, 2;	
Pneumococcus, staphyloc. and streptoc.	2 cases;	died, 2;	
Streptococcus and staphylococcus	6 cases;	died, 2;	
Streptococcus and proteus	1 case;	died, 1;	
No record	18 cases;	died, 6;	

The highest mortality thus is seen in the streptococcus cases, the next highest in cases of mixed infection; pure pneumococcus cases have a better prognosis than either these groups, but not so good as those with staphylococcus infections. Staphylococcus infections were relatively more frequent in young infants; of the twelve cases, five were in patients under eight months old.

In the opinion of the hospital pathologist the actual percentage of pneumococcus cases is somewhat larger than is shown in this table. Owing to the difficulty which sometimes exists in distinguishing certain types of pneumococci from streptococci, there were probably included as streptococcus infections, in former years, some cases

which should have been classed as pneumococcus. The great predominance of pneumococcus infections in this series of cases is in accord with general experience. The single case in which the tubercle bacillus was found was in a child two years of age, who had also an ischio-rectal abscess in the pus of which tubercle bacilli were found. The child was followed for over two years and was well at the time of the last report.

Latent tuberculosis was found at autopsy in two other cases in children who died of non-tuberculous empyema.

Blood examinations were made in the great majority of the cases. The leucocyte count varied between 81,000 and 6,000. There was no constant relation between the leucocytosis and the type of bacterial infection.

The average leucocyte count in
15 streptococcus cases was.....26,000
52 pneumococcus cases was.....28,000
11 staphylococcus cases was.....29,000
9 mixed infections was.....31,000

Nor was there any marked difference in the leucocyte count in cases recovering and those which proved fatal. The average in cases recovering was 24,000; in the fatal cases it was 27,000. The counts above reported were nearly all made at the time of, or shortly before, operation.

The cases with low leucocyte counts are of some interest: In six patients the white cells were below 12,000. In five of these it was between 10,200 and 11,300; three of these patients recovered and two died. One patient, eighteen months old, had a leucocyte count of only 6,300; it was a pneumococcus infection; was treated by aspiration, and terminated fatally ten days later.

Blood cultures have been made in only the most recent cases, 23 in number. Of 11 in which the result was negative, 9 recovered, 2 died; of 12 in which the result was positive, 4 recovered, 8 died. Of the positive cases, 10 showed pneumococcus, with 3 recoveries and 7 deaths; two showed streptococcus, one recovery and one death. This high fatality of cases showing positive blood cultures is not surprising; rather is one surprised that four cases recovered.

Of the 154 cases treated, 87 died, a general mortality of 56 per cent. These results must be taken in connection with the age of the patients.

TABLE II.

AGE AND MORTALITY.

First year	60 cases;	44 died;	mortality, 73 per cent.
Second year	67 cases;	39 died;	mortality, 58 per cent.
Over two years	27 cases;	4 died;	mortality, 16 per cent.

Age is therefore altogether the most important factor in prognosis. A mortality of 73 per cent. in empyema seems very high to one whose observation of the disease has been in older children only, but it is not so. I know of another institution for young children in New York in which for many years not a single case of recovery from empyema under one year was seen, though many such were treated. This was partly owing to the class of children forming the inmates of the institution, and partly to the severity of the pulmonary inflammations which occurred under these conditions.

Causes of Death.—The great causes of death from empyema in infants are exhaustion due to the prolonged suppuration, and general sepsis; 80 per cent. of the

deaths were from these causes. For about a week after operation the children frequently do well; then the temperature goes higher and shows wider fluctuations though the discharge is free; expansion of the lung is imperfect. There follows progressive weakness and asthenia, and the cases usually drag on for three or four weeks, death occurring from exhaustion or late complications. The average duration after operation in fatal cases was twenty-five days.

Pericarditis was responsible for six deaths, the ages of these patients being between five and twenty-one months. Meningitis occurred in four cases, the oldest child being eighteen months old; one of these patients had also pericarditis.

(1) Simple incision and drainage by means of one or more tubes, 46 cases.

(2) Incision with resection of a rib, 40 cases.

(3) Siphon drainage, 46 cases.

(4) Simple aspiration, 6 cases.

(5) Aspiration with injection of horse serum, 9 cases.

(6) Aspiration with injection of formalin and glycerine, 4 cases.

(7) Aspiration with injection of pneumococcus serum, 1 case.

(8) Aspiration-drainage with Politzer bag, 2 cases.

The following table gives the results obtained with the three principal methods of treatment followed, together with the ages of the patients:

TABLE III.

AGE, TREATMENT AND RESULT.

	Simple Incision	Rib Resection	Siphon Drainage
First year	Rec., 3; died, 13; total, 16.	Rec., 2; died, 7; total, 9.	Rec., 8; died, 12; total, 20
Second year	Rec., 10; died, 11; total, 21.	Rec., 11; died, 11; total, 22.	Rec., 6; died, 11; total, 17
Over two years	Rec., 6; died, 3; total, 9.	Rec., 3; died, 0; total, 3.	Rec., 8; died, 1; total, 9

Practically all of these inflammations were the result of a generalized pneumococcus infection. Seven children died from secondary pneumonia; four, of a general streptococcus septicemia, and three, from erysipelas. Of the four deaths in children over two years old, three were streptococcus cases and the fourth was a mixed infection, the streptococcus, staphylococcus and pneumococcus being found in the pus. The cause of death was exhaustion with general sepsis in three cases, and the fourth had a general sepsis and a complicating nasal diphtheria. Three were treated by simple incision and drainage, and one by siphon drainage.

Treatment.—The methods of treatment followed at the hospital during the period covered by this report have been as follows:

The cases were not selected for the different operations. For the first period of about three years practically all cases were treated by simple incision and drainage; for the next period of about two years the routine treatment was rib resection; for the past two and a half years nearly every case has been treated with siphon drainage. It may, I think, be fairly assumed that the groups of cases did not differ greatly in the severity of the infection, the kind of children affected, nor in their general care and hygienic treatment.

While these figures are too small to admit of absolute conclusions, it stands out very clearly that in children over two years old, cases of empyema do well by all methods of treatment in which incision and drainage are practised. The second point is the superiority of siphon drainage in children of

the first year. The advantages of this are better shown if we consider only cases treated in patients under nine months of age: Rib resection, four cases, all fatal; simple incision, eight cases, one recovery; siphon drainage, eight cases, three recoveries; one of the recoveries being in an infant but two weeks old, a staphylococcus infection. Not only has siphon drainage given the highest proportion of recoveries in very young children, but the patients have been more comfortable with this treatment. Of this fact all who have observed cases treated by the different methods have been convinced.

The siphon treatment is a modification of the "Heber-drainage" and was popularized in Germany by Bülau,[1] a little more than twenty years ago. It has been extensively employed abroad but I do not think its advantages have been appreciated in this country. The method of Bülau, generally known in literature as "aspiration-drainage," consisted in the puncture of the chest wall under local anesthesia with a trocar and cannula. After the withdrawal of the trocar a small rubber catheter was passed through the cannula into the chest; the cannula was then withdrawn by slipping it over the catheter. This was held in place by tying with a silk thread to the chest wall and fastened with gauze and collodion dressings. This short tube was attached by a glass connection to a longer tube which drained into a bottle containing a boric acid solution. As the puncture wound gradually enlarged during the next few days a larger sized drainage tube was sometimes inserted. After about two weeks a simple drainage tube with an absorbent cotton dressing was substituted.

The technique now practiced at the Babies' Hospital is a modification of this and was developed by Dr. James H. Kenyon, assistant surgeon at the Hospital. Exploratory puncture is made at the intended site of operation with the needle which is allowed to remain in as a guide. A puncture incision is made with a bistoury or small scalpel, which instrument has been found in our experience better for the purpose than the trocar, as the wound can be made of any desirable size. The wound should be a little smaller than the drainage tube to be used, as it can readily be stretched in introducing the tube. The drainage tube selected should

Fig. 1.

be firm and of large caliber; the size corresponding to a catheter No. 18 American (27 French) scale; for very young infants a slightly smaller one may be substituted.

Before insertion there is cut from the end of the drainage tube, a small ring, a little more than one-eighth of an inch wide. This is slipped over the end of the tube to a distance of about an inch, and forms a sort of collar to prevent the tube's sliping into the chest cavity. Just above this is placed a piece of broad tape (Fig. 1.),

[1] *Ztsch. für Klin. Med.*, 1891, No. 18.

with a small button-hole in its center which fits snugly over the drainage tube and pulls against the collar formed by the rubber ring previously mentioned. The whole

Fig. 2.

dressing is carefully sterilized. The tube is inserted into the chest up to the collar or about one inch; the tape is then applied against the chest wall, and is held in place by four or five strips of adhesive plaster placed obliquely and snugly about the tube in such a manner as effectually to close the opening into the chest and make it air-tight, and at the same time to prevent the tube from slipping into or out of the pleural cavity. After introduction, the distal end of the tube should be clamped by artery forceps until complete connections are made. The thoracic tube need not be over eight or ten inches long and is joined by a piece of glass tubing to a longer rubber tube which is connected to an ordinary wash-bottle standing upon the floor beneath the child's crib (Fig. 2). The bottle is plugged with a rubber stopper and should be of about one pint capacity and half full of a sterile, normal saline solution. The glass tube in the bottle with which the rubber drain is connected, of course, opens below the level of the solution.

Continuous drainage takes place from the chest into the bottle, without the admission of air into the pleural cavity. The daily discharge varies from one or two ounces to half a pint or even more. For the first two or three days after the incision the saline solution should be changed twice daily, the tube near its attachment to the bottle being closed meanwhile with an artery clamp so as to prevent the admission of air to the pleural cavity.

Blocking of the tube is shown by the fact that the saline solution remains clear, often also by a rise in the temperature. If this is due to a small or soft plug of fibrin it can often be removed by suction produced by "milking" the tube, beginning near the chest wall. If this fails, raising the bottle above the child's body and allowing two or three ounces of a fresh, saline solution previously warmed, to flow into the chest will often wash out the obstruction.

By attaching a piston syringe to the tube enough suction can sometimes be produced to remove obstructing masses of fibrin. If none of these succeeds it may be necessary to remove the drainage tube from the chest and cleanse it. This generally happens once in four or five days during the course of treatment.

After a time, usually in about ten days, but sometimes in a week, owing to a little ulceration about the tube in the chest wall, the tube becomes loose and air may leak into the chest. Retention in the chest also may become a matter of some difficulty. The tube may then be removed entirely and the chest allowed to drain through the open sinus into sterile dressings which are changed daily, in the usual manner, or a short drainage tube may be inserted. In most cases the discharge will continue for two or three weeks longer, gradually lessening. Now and then such a wound closes prematurely and must be dilated and the tube again introduced for a few days; but this is after all exceptional. The average time of wearing the tube was sixteen days, the longest time being thirty-five days, and the shortest time, three days.

One great advantage of this method of treatment is that it avoids all disturbance to the child due to daily dressings such as are necessary after resection of a rib, and even after simple free incision as commonly practiced. With small children this is a matter of much importance, since the wear and tear produced by the excitement, pain and terror of the daily dressing is always considerable. In some highly nervous children this may be so great as to turn the scales against the patient. In the treatment of the average case the tube does not need to be disturbed more than once in four or five days. The puncture is much less of an operation than rib resection, and though we have usually done it with a few whiffs of ethyl chloride, it can readily be done under local anesthesia, or with none at all.

Another point which has seemed to us of much importance is that expansion of the lung is favored because the free admission of air to the pleural cavity is prevented. In robust, older children, expansion does not seem to be affected by the large incision and the double drainage-tube; but this is certainly the case in infants. The degree to which expansion of the lung in a young infant is interfered with by the free admission of atmospheric air to the pleural cavity, is not, I think, sufficiently appreciated. It has long been my belief that the difficulty in expansion, even in recent acute cases, was a large factor in causing the high mortality in infants from this disease. After empyema operations, infants much more often die as a consequence of imperfect expansion of the lung than from imperfect drainage; but the actual cause of death is usually exhaustion, due to prolonged suppuration and secondary pleuritic infection. At autopsy the lung is found unexpanded—a collapsed mass lying in the suppurating pleural cavity.

We recently had an opportunity to observe the effect of admitting external air to both pleural cavities at once. During the dressing of an infant with double empyema, most alarming dyspnoea occurred when for a few moments both wounds were open. The child was gasping for breath and seemed likely to die in a few moments; but the distress immediately ceased when the chest wounds were closed by means of a dressing and snug bandage. Something comparable to this must occur in every young infant when a free opening is made

in the chest. The relative comfort after operation which infants with siphon drainage show, as compared with those treated by rib resection is very striking, and, I think, largely due to this cause.

Again, it may not be possible to prevent altogether secondary infection from occurring with the chest wall sealed as in siphon drainage; but when the large opening into the chest is made it is inevitable, and occurs very early. The dangers of necrosis of the rib and other local complications due to the prolonged wearing of the tube are also lessened by this treatment.

The only serious drawback to the method is the plugging of the tube by fibrinous masses so constant in pneumococcus empyemas. Practically, this has been found much less troublesome than was anticipated. The removal of the tube from the chest for this reason in some cases was not required at all, and seldom more than two or three times during the whole treatment. We have found quite as much annoyance from this cause when simple incision and drainage were employed and not infrequently after rib resection unless a double tube was used. It is true that cases treated in this way require close attention to detail if good results are to be secured, but I think very little more than is necessary when other operative measures are employed. This as an objection to the use of siphon drainage in private practice has little force. We have not found that with these acute empyemas in young children any serious interference with drainage has been caused by pinching of the tubes by the ribs. It is no more likely to occur than with simple incision and tube drainage.

This treatment by siphon drainage is not adapted to chronic cases where already there has been so much sinking of the chest that the ribs have approximated each other. Such cases, however, are uncommon in very young children, not one having been met with in this series of 154 cases. For them nothing but rib resection is adequate.

Next to siphon drainage our experience leads us to place simple incision between the ribs and drainage by a short tube into sterilized gauze and cotton dressings. Rib resection is rarely required in young children except in chronic cases, and occasionally as a secondary operation in the rare cases in which the simple incision alone has not afforded adequate drainage. On account of the manifest advantages of rib resection in older children and adults general surgeons in this country have been inclined to employ it also in infants and young children. This seems to me a mistake. Free drainage can in nearly all cases be secured without it, and with much less shock in the general operation, and much less disturbance to the patient. It is therefore, I believe, quite unnecessary with the soft elastic chest walls of infants.

Not much need be said of the other methods of treatment employed. Our early want of success in infants of the first year with simple incision and rib resection led to a trial of various other measures of treatment, principally aspiration, sometimes followed by injections of some sort into the pleural cavity. In all, aspiration was practiced as a therapeutic measure in twenty cases. In six cases simple aspiration was done, with four deaths and two recoveries. One of the latter was a small localized empyema, due to the influenza bacillus in an infant of fifteen months; aspiration was repeated three times. The other was a pneumococcus empyema, aspirated twice, 80 c. c. removed the first time and 30 c. c., the second time. The patient was

six and a half months old and in good general condition.

Aspiration followed by the injection of horse serum was employed in nine cases with two recoveries. The purpose of this injection was to see whether the bactericidal influence of the serum could be utilized in the pleural cavity. The amount usually injected was about half the amount of pus removed. Injections were in most cases repeated several times, the average number being three; in one case seven injections were made. The two cases of recovery were both examples of staphylococcus infection. One was in an infant four months old, and in good condition; three aspirations were done, and two injections of horse serum were made. The other was an infant of seven months in fair condition; he was aspirated twice, and one injection was given. Although benefit seemed to follow injections, it remains doubtful whether the injections contributed to the recovery in these cases, as it is well known that staphylococcus cases not infrequently recover after simple aspiration.

Aspiration with the injection of glycerine and 2 per cent. formalin solution was done in four cases, two in the first and two in the second year. All ended fatally; both the progress of the cases and the results found at autopsy were such as to convince us that this treatment was not applicable to young children. On the whole our experience with aspiration as a means of treatment, both with and without injections, was not encouraging. The danger of producing pneumothorax by repeated aspirations is very great and its avoidance seems almost impossible. Occasionally localized empyemas may be cured by it, and sometimes a general empyema, especially when due to the staphylococcus.

Conclusions:—1. Empyema of infancy has a high mortality under any method of treatment yet proposed.

2. One of the chief obstacles to recovery is the difficulty in expansion when the lung is subjected to atmospheric pressure. This rather than imperfect drainage is the principal factor in causing the present high mortality.

3. Aspiration, while occasionally sufficient to cure a localized empyema, is not to be depended upon as a means of treatment.

4. The injection of bactericidal substances is not greatly superior to simple aspiration, and is open to the same dangers.

5. Rib resection is not to be advised in recent acute cases in patients under two years old. In chronic cases it may be necessary at any age.

6. Simple incision between the ribs with the introduction of a single tube is sufficient in most cases to secure adequate drainage. It accomplishes in recent cases all that rib resection can do with less disturbance to the patient.

7. Siphon drainage is to be preferred to any other treatment in infants, especially those under one year, giving not only proper drainage and facilitating expansion of the lung, but causing the least disturbance of the patients during the treatment and showing the highest proportion of recoveries.

Numerous free dispensaries are being opened in many places in the south for the cure of the hookworm disease. The treatment is simple and safe. It consists of a morning dose of salts followed by an all-day fast, then 30 to 60 grains of thymol in capsules at bedtime and salts again the next morning.—*Med. Summary.*

CEREBROSPINAL MENINGITIS IN INFANCY—NOTES ON THE DIAGNOSIS AND TREATMENT.

BY

LOUIS FISCHER, M. D.,

Attending Physician to the Willard Parker Hospital, etc., New York City.

Obscure cases of cerebrospinal meningitis are frequently noted. They occur in older children, but are also met with in young infants. I have met with a case in an infant seven weeks old, which was reported elsewhere.[1]

Not only in artificially-fed infants, have cases been observed by me, but I have also met with cases of severe infection of this type, in breast-fed infants. One is therefore compelled to believe that human milk *per se* does not convey immunity to this infectious disease. The infant, seven weeks old, previously mentioned, ran a severe type of diplococcus infection involving both the ventricles and the spine, made a complete recovery.

A certain amount of resistance to this infection must be credited to the human serum contained in woman's milk. We can easily be misled in very young infants, at the beginning of an infection of cerebrospinal meningitis because very many of these cases show marked evidences of gastric disturbances, in fact the symptoms that predominate are those typical of an overloaded stomach. The differentiation therefore of a case of cerebrospinal meningitis from one of fermentative gastritis requires a careful elimination of symptoms common to both infections, and a careful study of additional symptoms positive to cerebrospinal meningitis and negative to gastritis.

Etiology.—The presence of the diplococcus of Weichselbaum was usually found to be the causative agent of this disease in cases seen by me. In some cases a streptococcus, in others a pneumococcus has been found. There may also be an influenzal bacillus present. Weichselbaum states that he believes the meningococcus is frequently present and lies dormant in the crypts of the tonsils and pharynx. For this reason he believes that when a lowered vitality exists due to subnormal conditions, then the meningococcus gains access through the lymph channels to the meninges and sets up an acute and sudden infection. In addition to the presence of the meningococcus in the tonsils, this pathogenic microbe is frequently found in the nose from whence it probably gains access through the frontal sinuses and reaches the brain. The meningococcus can be transmitted and an infection disseminated by direct contact with infected secretions containing the diplococcus intracellularis. Weichselbaum does not believe that the sudden appearance of a case of cerebrospinal meningitis in an otherwise healthy location is extraordinary when the etiological conditions such as the possibility of harboring this diplococcus in the nose and throat are remembered. Diplococcus carriers can be found everywhere.

Symptomatology.—*Abortive Type.* The type is usually seen in strong children who are able to withstand a severe infection. By reason of their health they are infected in a lesser degree, as shown by their symptoms and the rapidity of their convalescence. The onset is usually sudden, and I have seen meningeal symptoms subside within ten days, with no sequelae. This

[1] *New York Medical Journal*, December 18, 1909. Proceedings on Section on Pediatrics of the International Medical Congress, Budapest, Hungary, August 30, 1909.

happened in the case of a child, with undoubted cerebrospinal meningitis in which the diagnosis was confirmed by the bacteriological examination of the spinal fluid.

Rhinitis with catarrhal discharge from the nose is sometimes an early symptom in this disease. Rhinitis is frequently found in the abortive type of the disease. When the meningococcus abounds in the nose, then this pathogenic bacterium can enter the frontal sinus and give rise to encephalitis. In the abortive type of this disease there frequently is a nasal discharge in which the meningococcus intracellularis can be found long after the rhinitis has disappeared. The ambulatory cases are the ones that disseminate this infection because they carry the pathogenic bacteria from house to house.

Severe Type. In the severe type there is a sudden onset of symptoms. In older children a distinct chill is usually the first symptom noted. The skin feels hot. The temperature rises anywhere between 102 and 105 degrees F. (38.8 and 40.6 degrees C.), in the rectum. The pulse varies, it may be slow or very rapid. The respiration is irregular in character, sometimes sighing and labored, but most frequently Cheyne-Stokes in character. Later on there is vomiting, pain in the head, in the frontal or occipital regions, and pain in the back of the neck. There is moaning and frequently delirium. Vasomotor disturbances such as the flushing of one ear or one cheek are occasionally seen. The *Tâche cérebrale* is usually noted when stroking the breast with the finger nail. It is a distinct hyperemia and remains for several minutes. The tendons are very sensitive to the slightest pressure. The patellar reflexes are usually absent. When the thigh is flexed on the abdomen and we try to extend the leg there is considerable latent contraction, the so-called Kernig's sign. This symptom alone should not be depended upon. Hyperextension of the big toe produced by stroking the sole of the foot, the so-called Babinski reflex, is not always present. It is also frequently noted in perfectly healthy children. In a control series of fifty healthy children examined by me, the Babinski reflex was found in forty. Brudzinski's neck sign in tuberculous and other types of meningitis is present in 100 per cent. of those ill with either cerebrospinal meningitis or pneumococcus meningitis.

Technique to Elicit Neck Sign.—The head is forcibly flexed with the left hand while the child is lying flat on its back; with the right hand pressure is exerted on the chest to keep the child from being lifted. If the sign is positive, both legs will flex on the thighs and the thighs on the abdomen. The identical collateral sign consists of flexing the leg on the thigh, and the thigh on the abdomen, when the opposite lower member will assume the same position.

Either constipation or diarrhea may be present. The bladder acts well; although enuresis may exist. In some cases there is a marked retention of urine. The joints are usually swollen, simulating rheumatism. There is also a distinct petechial eruption in some cases. Out of a series of twenty-two cases seen by me, six had distinct petechiae. In six others the skin had a distinct eruption resembling scarlet fever. Owing to the spots present in this condition, the disease is frequently termed "spotted fever." The pupils are usually dilated, they are sometimes irregular. I have seen cases during an epidemic in which one pupil showed marked dilatation, while the other

pupil was contracted to almost a pinpoint. Strabismus is a frequent symptom. In one of my cases the child cried whenever a lighted candle was brought near the eyes. Opisthotonos is usually present. The severe rigidity of the sternocleidomastoid muscle in addition to the marked rigidity of the arms and legs forms a very prominent symptom during the course of the disease. Owing to these severe contractures we usually note constant moaning, most likely induced by the pain caused by said contractures.

Differential Diagnosis. Cerebrospinal Meningitis.—Vomiting, fever, anorexia, constipation, pupils irregular, do not respond properly, photophobia, opisthotonos, Babinski present, Tache present, Kernig present, Oppenheim present, convulsions throughout the disease, Brudzinski present.

Fermentative Gastritis.—Vomiting, fever, anorexia, constipation, pupils regular, respond to light, opisthotonos absent, no Babinski, no Tache, no Kernig, no Oppenheim, may be ushered in with convulsions, Brudzinski absent.

Another disease with which cerebrospinal meningitis may be confounded is scarlet fever. The following symptoms, for instance, may be found both in cerebrospinal meningitis as well as in scarlet fever: (a), vomiting; (b), fever; (c), mild exanthematous eruption; (d), accelerated heart action; (e), convulsions during the period of incubation. On studying such symptoms we can note many points in common, still the trained eye will at once examine the tongue which is characteristic in scarlet fever, and which may not even have swollen papillae in meningitis. The throat, principally the tonsils with their necrotic dirty-gray patches will be found in scarlet fever, but will be absent in cerebrospinal meningitis. The cervical glands will be swollen and easily palpable in scarlet fever whereas the reverse is true in cerebrospinal meningitis. As a rule cases of cerebrospinal meningitis cry continuously because of pain. There is usually marked opisthotonos which is never found in scarlet fever. These pupils show irregularity and sometimes photophobia in cerebrospinal meningitis, in scarlet fever these symptoms are never found. Rhinitis with catarrhal discharge from the nose is sometimes an early symptom in this disease.

Early Diagnosis. On an early diagnosis largely depends the outcome of a given case of cerebrospinal meningitis. My advice therefore is that if symptoms present themselves in which a suspicion of meningitis is noted, then a lumbar puncture should be performed and about 5 to 10 c. c. fluid withdrawn to establish the diagnosis. Properly performed there is no danger from tapping the ventricles or tapping the subdural space. The positive diagnosis of this disease depends on the examination of the spinal fluid by lumbar puncture. In many cases the spinal fluid is turbid or opaque, and this has given rise to the teaching that turbid fluid means cerebrospinal meningitis and clear fluid means tuberculous meningitis. This is not always true. Flexner calls attention to spinal fluid in cerebrospinal meningitis in the early stages of the disease, in which the fluid is clear and still contains the diplococcus intracellularis.

Method of Making Lumbar Puncture.—The patient should be in a reclining posture, on either side, with head and knees flexed thus slightly spreading the vertebrae. Either space between the third and fourth

or the fourth and fifth lumbar vertebrae may be chosen. An imaginary line drawn through the crest of the ilium to the spine is an easy means of locating the place to puncture. (Fig. I.)

Strict surgical asepsis must be observed. The needle should be of medium thickness with short bevel of the point. The needle should be introduced slowly, the direction being slightly from without inwards and from below upwards. Any obstruction of its lumen may be cleared with the stylet. The out-flow of a few drops of cerebro-spinal fluid will tell of the penetration of the membranes.

Dry Tap in Lumbar Puncture.—We may have a dry tap: *First.* If the caliber of the needle is small and the spinal fluid very thick.

Second. If adhesions are present at the base of the brain, preventing the passage of fluid from the ventricles to the sub-arachnoid space.

Third. If a successful puncture has been made, a dry tap may follow, due to inflammatory adhesions, caused by the previous introduction of the needle.

Fourth. The closing of the foramen of Magendie is the most frequent result of the inflammatory process, resulting in dry tap.

Fifth. A fibrin clot, or the presence of the cord in front of the needle may prevent the outflow of the fluid. To be sure that we are in the spinal canal, if a dry tap results, leave the needle *in situ* and introduce a second needle two spaces lower. Sterile water if injected through the upper needle will flow out of the lower needle, proving that we are in the spinal canal.

If the lumbar puncture yields a dry tap and meningeal symptoms continue, with rigidity and opisthotonos, then I certainly should suggest aspirating the lateral ventricles, if in an infant through the anterior fontanelle, if in an older child by the method known as the Kocher method.

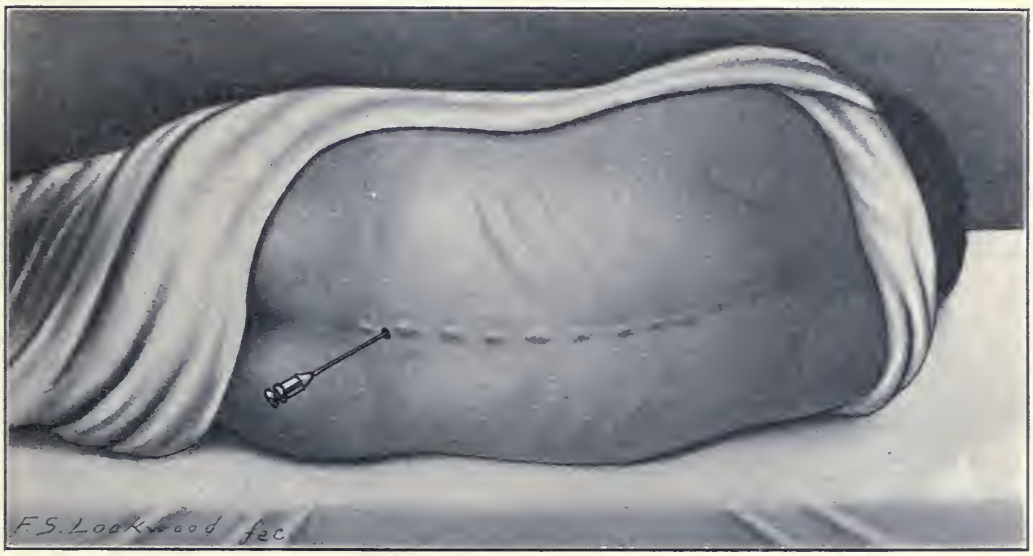


Fig. I. Lumbar Puncture Made Between Fourth and Fifth Lumbar Vertebrae.

Fig. II. Translucent head of child. The needle entering the outer angle of the anterior fontanelle, and penetrating the lateral ventricles, which is seen in shaded outline. The falx is dimly seen. The right line running from before backwards is the septum lucidum dividing the two ventricles.

We must be sure that the lumbar puncture results in a dry tap before attempting to enter the ventricles of the brain. If we choose a space between the third and fourth vertebrae resulting in a dry tap, then it is advisable to try the interspace between the fourth and fifth lumbar vertebrae. If both of these lumbar punctures give a negative result, then and then only is one justified in attempting an intraventricular aspiration. (Fig. II.)

Concerning the method of aspiration or injection of the lateral ventricles, we enter at the right angle of anterior fontanelle, the aspirating needle, about 8 c. m. (3.2 inches in length, is introduced downward and toward the median line at an angle of about twenty degrees to the depth of about 4.5 c. m. (1.8 inches). The needle enters the lateral ventricles near the median line, presumably through the second frontal convolution.

If pus is present the ventricles should be drained and washed with a normal saline solution until the fluid returns clear. Our next step is to inject no more than from twenty to twenty-five cubic centimetres of antimeningitis serum. This procedure should be repeated daily until tapping of the ventricles yields a negative result. If symptoms of intracranial pressure are noted immediately after the injection and vomiting or convulsions appear then it is better to postpone the aspiration and washing of the ventricles plus the injection of serum, to once in forty-eight or seventy-two hours, instead of daily. The symptoms of the patient and his individual condition must be studied and compared with the condition prior to such treatment, and this will be the safer guide as to the propriety of a second or third or fourth intraventricular injection than can be laid down by positive rule.

Treatment. When the diagnosis is positive and proven by the presence of the diplococcus intracellularis in the cerebrospinal fluid then no time should be lost, and at least twenty to fifty cubic centimetres of Flexner's antimeningitis serum should be injected intraspinally.

In my practice I have found that it is better to withdraw as much of the infected cerebrospinal fluid as possible by lumbar puncture. In some cases fifteen cubic centimetres were obtained, while in other cases twenty-five to thirty cubic centimetres were aspirated. With the needle left *in situ* I immediately injected the Flexner serum thus replacing the infected serum by the Flexner serum. The temperature, the pulse, the stupor of the child, the appetite, the restlessness, the constant moaning, and the general condition are all factors that must be studied to note an improvement due to the antimeningitis serum. If the symptoms do not modify within twenty-four hours after the injection of Flexner serum, then the injection must be repeated. Thus the daily aspiration followed by an immediate injection has been necessary for ten days, and in a severe case twenty-one days were required to modify the toxemia and produce a cessation of this active inflammatory process.

Antipyretic measures such as cold packs, ice bag on the head, and tub baths are indicated. Cupping of the neck and spine sometimes relieves internal congestion.

Eliminative treatment consists in cleansing the gastro-intestinal tract with the aid of citrate of magnesia or calomel. When high fever exists, flushing the rectum and colon with a cold soapsuds enema will be found useful.

The specific value of antimeningitis serum has been demonstrated many times. By lumbar puncture we aspirate as much of the spinal fluid as possible, in some cases 13 to 30 c. c. Through the same needle left *in situ* I inject from 30 to 60 c. c. of Flexner serum. Daily injections are required until improvement is noted.

Feeding. Unless the strength is supported by food our patient will die of exhaustion. Feeding by mouth with peptonized milk, broth, gruel and eggs is indicated. If there is vomiting and food is not retained, then rectal feeding should be given.

155 West 85th St.

THE RATIONAL TREATMENT OF THE HEMORRHAGIC AFFECTIONS OF CHILDREN.

BY

LE GRAND KERR, M. D.,
Brooklyn, N. Y.

It was always a matter of deep concern to the writer that the literature upon the hemorrhagic diseases of children showed that methods of treatment advised by one were unequivocally condemned by others and no one measure escaped this fate. This was partly due to the fact that hemorrhagic disease has been more or less of a mystery. As it still remains so, it is necessary for the writer to speak of hemorrhagic affections rather than hemorrhagic disease.

In most instances we are still dealing with a syndrome in which the chief feature is spontaneous hemorrhage and with our present knowledge it is a symptom or symptoms with which we deal rather than a disease. For instance, it is the custom to divide purpura into several varieties but a closer study of these seems to prove that it is not different diseases with which we deal but different degrees of hemorrhage which are determined by the degree of toxicity rather than by its nature.

Of the agents commonly used practically all have been advocated with a warning. Calcium lactate the most vaunted of all is admittedly uncertain in its action. With arsenic goes the warning that it will probably disturb the digestive tract by irritation; with adrenelin used internally, that its effect is more local than general; with gelatin solutions that if given by mouth their action is too slow and if used subcutaneously, even eight-hour boiling does not render it safe because while the possible tetanus bacillus is destroyed its toxins that do the harm are still active.

Thyroid extract, that socialist of the materia medica, whose administration was hoped to solve all of the unsettled problems of therapeutics, also had its day in the treatment of these hemorrhagic affections and was weighed in the balance and found wanting. There seemed at one time to be value in the suggestion that on account of its protein element, ascitic fluid would prove of service. It is easily and quickly obtained and fifteen to thirty c. c. injected subcutaneously and repeated in twelve to twenty-four hours has given doubtful results; doubtful, because in a few instances there has been apparent benefit while in the large proportion there has been little or none.

It is so self evident that the administration of iron, ergot, alum, tannin, sulphuric acid and several other similar agents is advised with no clear appreciation of the conditions to be met, that mere mention of the futility of this kind of treatment should be sufficient.

Of local agents there are several that control hemorrhage and no matter what the internal medication, local measures should always be instituted. Capillary oozing may thus be controlled by a gauze pad saturated with a ten per cent. solution of gelatin, a two per cent. solution of calcium chloride or a one to one-thousand solution of adrenelin. Prolonged but gentle pressure and the actual cautery also have their place as local agents.

Local control is unsatisfactory except for immediate results. Control in one situation does not affect the underlying cause and therefore one local hemorrhage follows another. Therapeutic efficiency demands something more than a control of local hemorrhage and the administration of some agent without a reasonable knowledge of what we are attempting to accomplish. What knowledge have we of these conditions?

With the exception of hemophilia, whose etiology remains uncertain, hemorrhagic affections of children are due largely to toxic substances which find their way into the circulation. While the particular offending agents still remain undiscovered, we are certain from the clinical and other evidences that these agents act not only upon the nervous system with consequent marked vasomotor disturbances, but in a direct manner upon the endothelial lining of the smaller blood vessels and there produce degenerative changes. As regards the blood, coagulability is seriously interfered with and the clot lacks the firm contraction of normal blood. This is particularly true of purpura. In those clinical syndromes, occurring in the new-born in which hemorrhage is the striking feature, infection has been most consistently assigned as the cause and while ordinary sepsis is the most common etiological factor in spontaneous hemorrhages in infants shortly after birth there are instances with non-septic and unknown causes. But in all, septic and non-septic, one feature is always prominent, and that is impaired coagulability of the blood.

Fig. 1. A simple and efficient method of withdrawing blood from a vein. A towel or bandage wrapped tightly about the arm brings the vein out prominently and makes the introduction of the needle easier. The needle should be inserted so that there is the least resistance to the flow of blood.

It is evident then that in the rational management of this class of affections, the primary objects are (1) to combat toxic elements which change the character of the blood; (2) to limit their effect upon the blood vessels (which is inevitable after a short period) and (3) to improve the coagulability of the blood. The first objects may be accomplished in time and are not

Fig. 2. The best sites for the introduction of whole blood or sera subcutaneously. When either of these situations is selected, it will be found that within a few hours most of the injected material has disappeared.

urgent, but the last justifies no delay and in most instances is urgent.

There is no necessity for the writer to go into the details of treatment of the septic or other conditions which result in the presence of toxic substances in the blood; such treatment varies with individual cases. It must be clearly understood however that there are to the writer's mind two distinct propositions as regards the direct treatment of the circulatory changes taking place in hemorrhagic affections during childhood; one which concerns the blood vessel and the other the blood.

There are times when the hemorrhage has been prolonged enough or sufficient in amount to demand partial restoration of bulk if the vessels are to continue their work. This is the opportunity for a well-selected, timely and cautious administration of saline solution. Often this is used as a therapeutic measure whose value is overestimated and is applied more commonly as a routine measure than as a clearly indicated method based upon a physiological principle. The administration of saline solution, of stimulants and tonics to the circulation is not rational, unless we presuppose that the several blood forming organs are in reasonably good functioning condition. The question must always be considered: will the vessels withstand immediate, prolonged or vigorous stimulation? Unless we can answer this affirmatively, we may accomplish actual harm by this treatment. Using saline solution as a substitute for blood, we must be clear as to whether we need it as a liquid or a hemostatic agent. Whatever the pathology may prove to be, there is some serious fault with certain morphological elements in the blood and coagulation is therefore difficult. Saline still further dilutes these elements which are already too scarce and by its vigorous stimulation of the circulation tends to increase hemorrhage. In other words, there is great danger in increasing bulk at the expense of quality.

What we strive for in this class of cases, is not blood as a fluid but blood as a hemostatic agent. We do not even strive to rejuvenate any organ or tissue; there is no time for that. Primarily, our thera-

peutic aggressiveness is to as quickly and as safely as possible supply to the blood the elements in which it is lacking or which have become inefficient and while thus controlling immediate consequences, give the blood making organs a chance to restore the normal balance.

The writer is assured that we possess two agents which will accomplish this: blood serum and whole blood. This is based upon a considerable clinical experience.

In the first cases in which this method was tried, animal serum was used. In most instances, a blank serum was administered but occasionally other sera were used as urgency left no choice. The results were uniformly satisfactory in that this method was sufficiently more prompt and certain in its results than all other measures that had been used. This difference in results was so consistently marked that it quickly superseded all other measures, except local treatment as an adjunct. The usual procedure was to administer ten to thirty c. c. and to repeat this every one, two or three days. These were the average but by no means the maximum doses. There was one troublesome feature; that was with the use of an animal serum, the patient frequently had to combat more or less severe serum reaction.

The use of human blood serum is more efficacious than animal sera and it should be used in preference. There is one point that needs emphasis; that the serum obtained from a near blood relation is of the greatest value with one exception, that exception being the use of whole blood from a blood relation, hypodermatically or by transfusion. Transfusion is the ideal method.

While there are difficulties of technique in transfusion, most of its failures can be laid to the fact that there is not always a clear understanding of the physiological principles involved or of its limitations in any given case. Transfusion or any other blood increasing measure does no good unless the blood making organs are capable of proper functionating.

When transfusion is not practical, whole blood may be used in a simple, immediate and most efficient manner. This is by withdrawal from a near blood relation and immediate injection into the child subcutaneously. It is a simple procedure to find the vein of the adult (the donor) and sufficient blood may be withdrawn quickly (usually five to ten c. c.) for immediate injection into the recipient (the child). If one has ever attempted to find the vein in a young child, he will at once appreciate the great difficulty, and therefore will understand why intravenous injection is practically impossible. The hunt for the vein takes so much time that the blood is rendered useless for injection. The procedures of withdrawal and injection must all be planned so that there is the least possible interval between them. The writer is more convinced than ever, that the procedure he recommended (not originally) in a paper read before the Society of Internal Medicine, Dec., 1912, to wit: the injection of whole blood (subcutaneously) in cases which are urgent and in which transfusion is impractical and the injection of human blood serum in the less urgent cases, is the most rational method of procedure. Both of these should be obtained from a near blood relation. Outside of the first immediate effect in which whole blood easily leads, there is apparently no therapeutic

difference between whole blood and serum.

The writer would not leave you with the impression that all other details may be neglected, for the general management applicable to all forms of hemorrhagic disease in children must be carried out.

These are absolute rest of mind and body, protection against possible injury, the institution of adequate hygienic care, a harmless but sufficient diet and the treatment of the underlying condition, if it is discovered.

But in the treatment of the hemorrhagic affections of children first and prime consideration must be given to directly increasing blood coagulability by the administration of serum or of whole blood secured if possible from the nearest blood relation.

OBSCURE HIGH FEVER IN CHILDREN.

BY

GODFREY R. PISEK, M. D.,
New York City.

Professor of Children's Diseases, Univ. of Vermont; Adj. Prof. Children's Diseases, N. Y. Post-Graduate Medical School; Attending Physician, Willard-Parker Hospital; Visiting Pediatrician to Red Cross Hospital.

It is my purpose, in this paper, to call attention to and to discuss, with a view to their diagnoses, certain diseases which are accompanied with high fever but otherwise having such meagre signs or symptoms as to obscure their origin.

The pediatrician is very often called in consultation by his colleague, who seeks an explanation for this "high unexplainable fever." These cases have, as a rule, been under observation for several days, and have puzzled the practitioner; they may therefore be deemed worthy of our attention.

The adult is very often quite capable of materially aiding his medical advisor by relating his symptoms, and does not tend to confuse him; when dealing with infants and children we do not have this assistance, on the contrary we may easily be led astray by the undue magnification of a localized pain or a transitory set of symptoms which, in reality, have little or no bearing on the real condition. These obscure conditions are more apt to be correctly diagnosticated by the practitioner who is systematic and painstaking; one who will call to his aid all the modern scientific resources at his command, rather than by the man who relies upon his "experience" which, it must be truly said, often engenders only snap-shot diagnoses.

It is well known that a child may have an elevation of temperature from a very slight cause, and that it is often out of all proportion to the symptoms. We have seen, for example, transitory elevations of temperature up to 102 F. in almost every case in a babies ward, following a hot humid night or after an exciting tiring day such as a Christmas celebration. That a sudden rise of temperature to 103 F. can be occasioned by constipation only, in a sick child, must also be appreciated. However, it is not these temporary rises that concern us here. A study of my history-book for cases of obscure febrile disorders shows that the diseases which are most apt to cause confusion in diagnosis can be placed in three main groups:

(1st) Those in which the diagnosis may be cleared up by a thorough physical and clinical examination.

(2d) Those in which the disease is in its early stages and has not developed suf-

ficiently, and in which the diagnosis is mainly made by a process of exclusion.

(3rd) This group is made up of diseases less commonly seen, though important from the standpoint of treatment.

In the first group, placed in the order of their relative frequency, are:

1st. Otitis media.
2d. Empyema (encysted).
3d. Urinary infections.
4th. Malaria.
5th. Infections of heart and pericardium.
6th. Glandular fever.

In the second group:

1st. Tuberculous meningitis.
2nd. Typhoid fever.
3rd. Onset of the exanthemata.
4th. Acute poliomyeloencephalitis.

The third group (calling for attention less rarely in this regard):

1st. Frontal sinusitis in childhood.
2nd. Pharyngitis in *infants.*
3rd. Obscure abscess formations.
4th. Intestinal infections of a latent type.

While the diagnosis is still in doubt in these conditions of obscure fever, they very often masquerade under the blanket diagnosis of influenza or malaria. You will agree with me that these two terms often cover a multitude of medical sins of omission. Very often they are made without any laboratory evidence, and are given to the family only to supply a long felt diagnostic want. Unfortunately medical science does not profit by this course, and it would be better if we did not so delude and comfort ourselves at times, but stamp them (at least in our own minds) as indeterminate in character or as indicating an infection of unknown origin.

On the other hand, the writer feels convinced that fewer erroneous diagnoses will be made, if the possible conditions that can cause prolonged high fever in children, are *kept in mind,* and a diagnosis, at least by exclusion, is attempted.

Otitis Media has been placed at the head of this list of offenders, or offended against, since it is so frequently overlooked in children. There is still a firm impression among the profession, that a child will make it known that it has an earache even if it cannot so signify regarding any other ailment. On the contrary, it has undoubtedly been your experience, as it has been mine, that the first indication of the trouble may be in a discharge from the ear. The only way to obviate this is to make a routine examination of the drums, in all infectious and obscure cases. (Personally I should rather go to the baby's bedside without my stethescope than without the instruments necessary for an ear examination).

If one is near a competent aurist he may be depended upon for assistance, but the practitioner should be able to determine for himself if the drum is reddened or bulging and thus to find an explanation for the obscure febrile curve. How satisfactory it is, both to the patient and to the doctor, to have the temperature drop to normal after a paracentesis of the drum membrane, it is needless to comment upon.

I cannot leave this group without a word of warning as to the further confusion which may be caused by a complicating otitis when the physician's attention is diverted by a primary febrile disease, such as pneumonia or typhoid. Eternal vigilance is here again the price of success.

Next to otitis we are confronted with Empyema (especially of the encysted variety), as a stumbling block. In my judgment this is the result of improper teaching regarding the physical signs which are present in this condition in early life. If the signs such as are found in adults are depended upon as a guide, the practitioner will go astray, or will not make the diagnosis until much damage has been done to the lung. The more frequent use of the aspirating needle should be advised. We are warranted in inserting a needle for diagnostic purposes if we obtain, over a limited area of the chest, flatness or even marked dulness with resistance to the percussing finger, diminished breath sounds, (with or without bronchial breathing), especially if the course has been such as to suggest the diagnosis of "Unresolved Pneumonia."

My experience in the autopsy room has taught me that there is no warrant for this latter term. "Unresolved pneumonia" is undiagnosticated empyema. Empyema, free or encapsulated, will be found clinically and if the search has not been thorough enough, it will be found at the postmortem.

It is only within comparatively few years that any attention has been paid to the infection of the urinary tract in early life. That such an infection is often the cause of obscure pyrexia, especially in girl babies, must be recognized. It is far from being a myth or a fad. (It was the cause of 20% of the indeterminate diagnoses in my case book). Caused in the majority of cases by the colon bacillus which invades the tract by the hematogenous or ascending route, we have as a result, long continued high remittent fever. Usually this fever is thought to be due to malarial or typhoid infection. It is astonishing how long cases will be treated along these lines before the attention is at last directed to the condition of the milky pus-containing urine. The excuse is constantly heard that specimens of urine are difficult to obtain in infants. A little patience, a little pressure over the bladder, or the little finger gently introduced into the rectum will reward the attendant with a specimen if the bladder contains urine. Moreover, there is no more danger to be feared from a clean catheter than there is from a clean surgical instrument, and therefore clean catheterization should be performed in suspected cases accompanied by high remittent fever with chills or rigors, in a case in which the malarial organism has not been found.

To treat a child for malaria, in whose blood no organisms can be found, after careful and repeated examination, is unwarranted and calls for a closer study of the case and a better classification of the trouble.

On the other hand, if the urine is found to be normal, if the ears are negative and the blood is sterile—think of an infective process invading the pericardium and heart. Recent studies of the heart and its covering make us feel that we must soon recast our whole conception of cardiac affections. Research work, which it has been my privilege to do on this organ, in children, with the aid of the polygraph, confirms the view that it is the myocardium and the pericardium which bear the brunt of the infection, and that *these* are the important structures to be considered. They are relatively more noteworthy than a study of the valvular murmurs emanating from the endocardium. These, it is true, are helpful and must not be discarded but they are also

markedly misleading. The practical bearing is to carefully auscultate for pericardial friction rubs and evidences of myocardial changes which may be present with or without rheumatic manifestations. These, if found, will account for a high, unexplained fever in its early stages and is more gratifying than to find the sequence at some later time in a well marked valvular murmur.

Although not common, a puzzling condition which is seen usually after the first year of life, and in which occur rather sudden variations in temperature, ranging during the day from 101 F. to 105 F. is Glandular Fever. It is accompanied by considerable prostration which is out of all proportion to the physical findings. In the beginning, when the diagnosis may be in doubt, there can be felt a moderate enlargement of the sublingual glands at the angle of the jaw, on one side. Later the opposite side becomes involved. The nose, pharynx and adjacent structures drained by these glands will be seen to be quite normal; *a very helpful finding* as we are thus able to rule out a simple adenitis.

Mumps are excluded by the non-involvement of the parotid gland. Keeping these facts in mind, we may make the diagnosis before the glands become so large that no further doubt is entertained. The fact that the lymph nodes do not go on to suppuration but subside within a fortnight, confirms the diagnosis.

If Pyelitis gave rise to a constant or even fairly constant train of symptoms, the physican's attention would be drawn to this tract, but unfortunately the protean character of the symptoms only tend to mislead. The patient is found to be obviously ill, with a high temperature not to be accounted for by any physical signs, and not until pus is found in the urine is the diagnosis fixed. In the event that only one urinary examination has been made and that particular specimen happened to be clear, the physician is still further baffled, for the pus may appear only on alternate days.

Except in the cases of bacilluria, the children are obviously ill. At the outset the child is apt to be treated for an alimentary disturbance. However the restlessness, loss of appetite and pyrexia are out of all proportion to the findings. If still untreated, the child becomes waxy pale, loses flesh rapidly, and is more severely affected by the high rise of temperature. The fever usually remains high (105° or 106° F.) for several days with slight remissions, and later assumes an irregular remittent type. Within a few days it drops to normal, only to be followed by a relapse. This may be repeated for weeks at a time, relapse following relapse and each rise quite regularly preceded by a rigor or chill. The diagnosis must depend upon an examination of the urine. It is highly acid in pyelitis and contains pus cells. In a cystitis the urine is alkaline and there are many more pus cells with mucus, in the specimen.

In our second group, Tuberculous Meningitis may have at the outset a high, irregular, remittent fever; this is especially true in infancy, particularly if the onset has been abrupt and ushered in with a convulsive seizure. We have seen cases, however, which ran an irregular, typhoidal temperature, that gave no evidences of meningeal irritation for some weeks, and in whom the diagnosis could not be positively made except by lumbar puncture. If, upon examination, we note definite sensory symptoms, even with minor signs of cor-

tical irritation as evidenced by cervical rigidity with head retraction, Kernig's sign, Brudzinski and contra-lateral signs and strabismus; the diagnosis of meningitis is cleared up and the specific infecting organism may then be shown by examination of the cerebrospinal fluid.

In spite of our clinical tests, Typhoid Fever in the young, because of its atypical course, can be very confusing, especially in its prodromal stage. The examiner is apt to be led astray by some one prominent symptom or symptom-complex. Epistaxis and headache are the exceptions while symptoms of meningismus may usher in the disease. A cough is not uncommonly present and may still further complicate the making of an exact diagnosis. The stools are not at all typical and it is quite the exception to find them of the pea-soup variety. Since the Widal is not helpful in the first week, we can resort to direct blood culture. This method is not used so frequently as its importance warrants since by this means we can make a positive diagnosis in the first few days of the disease. The typhoid bacillus is cultivated from the blood, a specimen being taken directly from the median basilic vein. A sterilized glass syringe is used, containing a solution of citrate of soda, to prevent clotting. If a blood culture is not practicable we must exclude the group of obscure fevers previously mentioned, and depend upon the blood analysis which will show a leucopenia with increase of lymphocytes.

It is only necessary to mention here the high fever with symptoms generally referable to the gastro-enteric tract, which precedes the onset of the paralysis in Poliomyeloencephalitis. In spite of the fact that the epidemic is over, one should ever keep this possibility in mind, as sporadic cases are cropping up constantly. A careful physical examination to exclude the ears, blood and urine, will prevent making a false diagnosis, which it is afterwards unpleasant to retract, at the advent of the paralytic stage. Lumbar puncture should be employed, particularly in the encephalic type of this disease, since it not only benefits the patient but materially aids in making the diagnosis.

Less rarely met with, although extremely puzzling, are obscure Abscess Formations, as in the liver for example. They cause high temperature and are for a long period, accompanied by so few of the symptoms of general sepsis that they are not thought of. They result, in the majority of instances, from latent infections of the intestinal tract. We see them more often since the exchange of travel with our new colonial tropical possessions. An examination of the blood and feces for ova will materially assist the physician.

An excess of large mononuclears, for example, should suggest some protozoal infection as malaria, while an excess of eosinophiles, on the contrary, may indicate a latent infection with the hook-worm. In these conditions, it is just as important to be able to rule out malaria as to diagnose its presence. In passing, it is pertinent to remark it is a common mistake to suppose that if quinine has been given, there is no use in searching for the malarial parasites in the peripheral circulation. The finding of the ova of infecting parasitic worms in the stools, or the presence of ameba, will clear up a puzzling case. A variety previously supposed to be non-pathologic, has been shown to be capable of causing marked symptoms and we have found the disease in children who have never been out of the country. If the shreds of mucous

membrane, found in the stools, are broken up and a flake examined, on a warm stage, under a low power microscope, numbers of the entameba will be revealed.

How satisfactory it is, to make the diagnosis and feel that the treatment is based on a specific factor, goes without the saying.

We should determine, therefore, that no fever in a child, will be considered obscure until we have at least examined the ears, blood and urine, as part of the routine examination. In conclusion we may say, that a diagnosis is well started when the physician is fully cognizant of the possibilities hinging upon a certain prominent symptom, and it is for this reason that we have reviewed the diseases in childhood that may be found obscured behind the high temperature curve.

36 East 62nd St., New York City.

THE TREATMENT OF ACUTE CHOREA.

BY

JOSEPH COLLINS, M. D.,
Physician to the Neurological Institute,
AND
W. O. GLIDDON, M. D.,
Resident Physician, Neurological Institute.
New York City.

It may be inferred from reading text books and encyclopedia of medicine, in which the subject of chorea is considered, that the treatment of chorea is fairly well defined; in other words that there is an orthodox, well established way of treating it: rest, non-fermentative diet and the administration of arsenic in increasing doses up to the point of tolerance. Indeed owing largely to the enthusiastic recommendation by Seguin of arsenic, that drug has developed a reputation for usefulness in the treatment of chorea which might almost be called specific. We have been convinced for a long time that drug administration has practically no influence upon the course or outcome of an attack of chorea. With the intention of testing the validity of that view we have treated the last forty cases that have come into our Division of the Hospital without drugs, save when decided rheumatic manifestation, such as tonsilitis and endocarditis exist, when we have given the salicylates. It is the purpose of this brief article to set forth the results of such treatment and so maintain that the cure of the disease is thus encompassed as quickly and as thoroughly as when the most complete and orthodox medication is administered.

Chorea, minor infectious chorea, or St. Vitus dance is an infectious disorder of the central nervous system caused probably by a mutation of streptococcus viridans. The conspicuous symptom is motor unrest, manifesting itself as involuntary, irregular muscular twitchings sometimes of profound and indescribable violence, but at other times manifesting itself as a lame or paralytic state.

There are many conditions that apparently predispose to an attack of chorea and amongst them age, sex, previous attack and heredity are the important factors. All writers agree that the majority of cases of Sydenham's chorea occur between the ages of seven and fifteen; the average age of the 40 cases that we base this report upon was 11 years. Sex is an important contributory factor. Female children develop the disease much oftener than the male. Of our 40 cases 28 were girls and 12 boys. In a previous analysis that we made of 100 cases the proportion was 41 males and 59

females. Close inquiry into the existence of direct or collateral heredity of a neuropathic kind show that there was such a history in 28 per cent. of the cases. Many writers, and especially German writers have claimed that the history of neuropathic inheritance is much greater. Eulenberg, for instance, states that a neuropathic taint was found in the majority of his cases; but we have inquired into this matter very carefully for many years and have not been able to confirm these statements.

It is well known that one attack of chorea predisposes to another, 18 of our cases or 44 per cent had had previous attacks. The influence of rheumatism on the development of chorea is a most important one. Such rheumatism may be of several varieties—tonsillar, articular, cardiac or muscular. Such history has been found in 50% of our cases. This corresponds very closely with the figures of our previous one hundred successive cases. There seems to be a distinct relationship between chorea and the seasons, the greatest number of cases occurring in the spring and early summer. This has been interpreted to mean that the stress and worry of school work and particularly the approach of examinations has acted as a source of worry, which with fright and other forms of phychical trauma, have been considered to be exciting causes of the disease. As a matter of fact although chorea occurs much more often in what are called nervous children, psychic trauma does not play a very important role in causation of the disease.

It was formerly believed that chorea could be spread from case to case, that it was contagious—and instances are cited of epidemics in schools. But this is now classified as a form of hysteria, hysterical chorea.

There is a peculiarly severe form of chorea occurring during pregnancy, generally in primiparae and in the first months, chorea gravidarum. It is usually in those who have had previous attacks of chorea and is very rare. We have not seen a single case in our clinics.

If it be true that acute chorea is an infectious disease in every instance, and we assume such is admitted to be the case, it will readily be seen that the contributory etiological factors that play a part in all infectious diseases such as in poliomyelitis for example, play an important part in this disease. The assumption that chorea is an infectious disease is based largely upon the fact that bacilli have been found in the blood, the lymph and in the brain in many cases and upon analogy. As long ago as 1872, Pianese found a diplococcus in the blood and cerebrospinal fluid in a fatal case of chorea and since that time, especially since bacteriological technique has become so competent, a great number of investigators have reported the existence of streptococcus and staphylococcus in the blood, the endocardium, the cerebrospinal fluid and the brain of cases that terminate fatally. The most convincing contribution of modern times is furnished by Cramer and Tobben (*Monatschrift F. psych. u. Neurol.* No. 18, 1905). They found a staphylococcus in the blood of the patient with chorea who recovered. Another case, one that died, in which a streptococcus was likewise found there were indications at post mortem of an active inflammation in the brain. The cerebrospinal fluid, the peritoneal fluid and the valves of the heart contained the same streptococcus.

Chorea should be treated vigorously and promptly. First, that the course of the disease may be abbreviated and, second,

that complications may be avoided. The treatment which our cases have had consists of rest in bed which is made as absolute as possible; of complete isolation; of cold blanket packs temperature 65 F.—one hour duration, two or often three times a day, when the motor unrest is profound; of a milk diet, the sweet milk being combined with some alkaline and the fermented (Bulgari) milk being given without dilution; and of the administration of saline laxatives when necessary. The result of such treatment has been complete cure within four weeks in 63% of the cases, improved sufficient to warrant discharge from the hospital 27%; untreated 2 cases, not improved 2 cases. In other words, 80% of the cases were either cured or so improved that they were permitted to go home within four weeks. This we maintain is as good or better result as obtained from any medication. It is because of such experience that we have ceased entirely the administration of arsenic, antipyrin, quinine, exalgin, iron or bitter tonics. Even as long as 12 years ago we said: "It is difficult to estimate the real value of arsenic in chorea, even though tradition and experience speak so loudly in its favor. Most writers agree that it has an important influence in shaping the course and in modifying the severity of an attack. This opinion the writer shares though not with great enthusiasm; for it has already been said that under favorable conditions a vast majority of cases recover as surely and as promptly without any medication.

There is most serious and profound objection to the administration of drugs such as exalgin which causes rapid disintegration of hemoglobin and although it has a magic action upon the choreic movements we have ceased entirely to administrate it because of the distressing collapse symptoms which it produces. Nor do we give chloral, bromide, antipyrin and similar drugs which we gave a few years ago, the reason being that with rare exception do we encounter a case whose choreic movements cannot be controlled by rest, isolation and cold packs. During the time that these 40 cases which we herewith report have been in the hospital, there was one case of chorea of the most violent form that resulted fatally. We do not include that in these statistics, because the case has been carefully worked up by Dr. Zabriskie and he is about to report it. His illustration particularly of the point that severe cases of chorea terminate in death, may occur, and no administrable lesion be found on careful examination of the brain.

Care must be taken that the patients do not injure themselves especially when the movements are violent. It is often necessary to pad the hands with cotton and bandage them, sometimes extending the bandage to the arms to prevent skin irritation. We have found alcohol sponges very useful. If necessary the patient should be gently restrained by sheets if a crib or bed with raised sides is not obtainable.

In cases where the proper amount of sleep is not being obtained a mild hypnotic is beneficial and we have found medinal the most satisfactory.

In the very severe cases with marked cardiac involvement alcoholic stimulation, as whiskey or brandy, gives the best results, especially if there be prostration.

The fact that chorea is very liable to recur should prompt us to adopt measures that will tend to prevent this recurrence if possible. Our attempts at such prevention must be directed largely to avoiding the contributory causes and to combat the rheu-

matic infection because it is assumed that some mutation of the streptococcus viridans is at the basis of the majority of cases of so-called rheumatism.

The treatment of chorea at home is generally most unsatisfactory mainly on account of the impossibility to completely isolate the patient from other members of the family. If this can be successfully accomplished there would be no real benefit in transferring the patient to a hospital; as we consider isolation and cold packs the most important factor in the patient's recovery.

THE PROBLEM OF ARTIFICIAL FEEDING.

BY

BOYCE W. KNIGHT, M. B., L. R. C. P.
New York City.

The problem of feeding sick babies so that they will get well is perhaps less harassing than that of feeding well babies so that they will not get sick. We are daily called upon to supply a baby with something "just as good as mother's milk." As this has not as yet been accomplished, the question of the next best thing is still occupying the attention of our pediatricians. The mother, as well as the baby, must be taken into consideration, or trouble will arise, and disaster be the outcome.

Too much time, in my opinion, is spent on proclaiming the virtues of preparations that require the facilities of a laboratory to prepare them, and are not possible or any way practical in the home. The vast majority of babies are born to the lower and lower-middle classes—not to the wealthy. Consequently, the majority of work should be done to safeguard the lives of these. Let us know of something that we can tell the mother of five little ones, who has to make both ends meet on, say, $18.00 or $20.00 a week, that will be as near a perfect nutriment for her baby as possible. But we should keep in mind the fact that if she has to spend three or four hours a day preparing a food, she will follow our directions for a week, and then take the advice of some neighbor, and give the infant one of the proprietary foods. Her choice of one of these is not guided by any knowledge of the matter, and may be good or at the expense of the baby's life.

I have recently read in a book written by a physician as an aid to the mother and general practitioner, the following:

"Fresh cow's milk, properly modified, is the only food for the bottle baby. Nothing else will take its place. But we should endeavor to get good milk. By good milk I mean, in the first place, milk from cows that are free from tuberculosis—tuberculin tested cows.

The cows should have plenty of air space; the hay should not be stored directly above them, where the dust may sift down upon the milker, nor should the cows be hayed just before milking, for the same reason. The walls of the cow-house should be whitewashed two or three times a year. The manure should be stored outside the barn."

The writer then goes on to say as to the condition of the floors, the frequency of sweeping, sprinkling, etc., the cleanliness of the cows, the washing of the milker's hands, the condition of the pails, etc., etc. Such statements as these are worse than useless. What mother can dictate as to the condition of the barns where the cows are kept? How can she know that the cows are tuberculin tested? Is she informed when buying her milk, how often the barns

are swept, and where the hay is stored? The same author goes on to say that milk is a splendid food for germs as well as for babies, and further states that certified milk must come up to the standard of the County Medical Society, and for that reason retails at 15 to 20 cts. a quart, and thus is a paying proposition for the farmer. When will such men stop theorizing and come down to earth? Is the author looking after the babies or the farmers? Twenty cents a quart is indeed a good price for the latter, but how about the poor mother who has to pay for it or give her baby a milk (to quote from the same authority) "that is swarming with as many as five or six million bacteria per cubic centimeter or quarter of a teaspoonful."

Of far greater value, to my mind, is the opinion of Levy,[1] who says:

"The effect of scientific artificial feeding on infant mortality will be in inverse proportion to its complexity, and in direct proportion to its general applicability."

As long as scientific feeding is looked upon as a certain complex method of modifying milk, to which an arbitrary array of formulae and percentages are essential, so long will it remain an interesting topic for cantankerous discussions, but quite beyond the average doctor or the average baby. Scientific artificial feeding will occupy its rightful place in the reduction of infant mortality, only when we recognize its limitations as well as its possibilities; that it must serve the many and not the few; that it must be characterized by simplicity and general applicability.

Grulee,[2] although skeptical as to the value of Proprietary Foods, says there is no question that "in spite of eminent pediatrists to decry them, the proprietary foods have been the mainstay of the general practitioner." I am only able to see one explanation of this very glaring truth. The formulae emanating from the laboratories of many workers are not practical for the general man, neither are they within the reach of eighty per cent of mothers. Forsythe[3] most ably pointed out to us the dangers attendant upon the use of cow's milk, the possibility and even probability of adulteration before it reaches the infant, the dangers of contamination, the liability to its being frequently diseased.

Dr. Forsythe says "The safest and most convenient form of food is that of a dry powder, soluble in water." That an ideal infant food must be free from pathogenic bacteria is beyond argument; yet what practitioner will guarantee that the milk that he puts a baby on is not a mass of infected matter? In Elizabeth, New Jersey, in 1909, seven per cent of all babies born, died of gastro-intestinal disease before they had attained one year of age. How strong a connecting link in the chain is cow's milk. True, it is not the only factor entering into the etiology of this disease, but certainly of prime importance. Of the cases of gastro-enteritis reported by me,[4] all of those recorded were fed on cow's milk at the onset of the disease; all showed rapid recovery when given another diet.

Fischer[5] recommends one of the dried milk foods as an aid to treatment.

Hoag[6] says: "Given a mother who cannot afford to buy a safe quality of milk, and who has no ice, we might better advise condensed milk or one of the proprietary foods fixed without fresh milk."

Holt believes that the foods which are prepared without milk are dangerous in that they produce scurvy. Cow's milk we know is dangerous in that it produces in-

fections of the gastro-intestinal tract. It is unnecessary to inquire into the death rate of either of these diseases, to know which is the most prevalent or the most dangerous. I think, given the worst case of scurvy, the average physician is able to cure it within two weeks. The usual time, however, is three to four days. The treatment, consisting of simply fresh fruit juice, preferably that of oranges, is so certain, simple and speedy that scurvy should hold no dread for those acquainted with it. Moreover, scurvy is seldom encountered, and the cause is not in my opinion at all certain. It is claimed in this country that the disease is a result of living for any length of time exclusively upon what might be termed a devitalized food, such as boiled milk, condensed milk or dried milk. This is hard to believe, bearing in mind that Germany and France use boiled milk practically altogether, and seldom, if ever, get a case of scurvy, whereas England and America, where boiled milk is tabooed, and fresh milk recommended, are the countries most affected.

This is even more clearly expressed by Anderodias[7], who says: "In the consultations of nurslings in which we feed sterilized milk, as in those of Budim, Variot and Maygrier, one has yet to see an infant with scurvy, while abroad, in England and America, especially where laboratory milk is commonly employed, the cases of scurvy are very frequent." This subject of boiled versus raw milk has been most ably handled by Brenneman[8], who remarks that hardly a single modern text book in English, German or French even mentions boiled milk as a factor in producing rickets, and the whole question would long ago have died a natural death but for the aldermen and philanthropists. This and other literature along similar lines would at least leave a doubt in our minds as to the cause and importance of scurvy, whereas the milk cannot but be suspected as a strong factor in gastro-enteric intoxication, the seriousness of which even the most optimistic of us will recognize.

In conclusion, I would urge that more time be spent upon the practical side of infant feeding. Our aim should be to succeed in saving the lives of babies rather more than to be recognized as purely scientific workers. The mother must be considered. A healthy, happy mother is better able to care for her baby than one whose energy is exhausted unnecessarily, and a mother's care will often do more for a baby than scientific formulae.

REFERENCES.

1. *Journal of Med. Soc. of N. J.*, Nov., 1912, p. 295.
2. Grulee, *Infant Feeding*, 1912, p. 125.
3. *Proceedings Royal Society of Medicine*, Vol. IV, No. VI, p. 139.
4. *American Medicine*, XIX, No. 1, p. 52.
5. Fischer, *Health-Care of Baby*, 1912, p. 77.
6. *American Medicine*, XIX, No. 1, p. 36.
7. Anderodias, J., *La Pratique des Maladies des Enfants.*
8. *Jour. A. M. A.*, LX, No. VIII, p. 582.

ALBUMINURIA IN DISEASED TONSILS.

BY

ALLEN BAINES, M. D.,
Chief of Medical Service.

AND

GEORGE A. CAMPBELL, M. D.,
Senior Resident Physician, Hospital for Sick Children, Toronto.

About a year ago, Dr. Campbell noticed, in making the routine examination of the urine, prior to administration of an anesthetic in children about to be operated upon for removal of tonsils and adenoids,

that about 10% of the patients showed the presence of albumin in the urine. He therefore conceived that a careful analysis of all such cases might be of importance and the results show that such is the case. To Dr. Campbell is due the credit of the analyses and literary research. It is generally conceded that nephritis, as a primary disease, rarely, if ever, exists: that it is always secondary either to a bacteriemia or toxemia of greater or less severity, the source of the toxins, a general infector or a localised focus of disease. The usual sites for such a nidus being some of the orifices of the body, the joint cavities, the appendix and the gall-bladder. In children, especially, the most common is the tonsils. Using this fact, therefore as a working hypothesis, the following data were carefully taken as to the immediate effect on such cases of albuminuria subsequent to the operation on tonsils and adenoids.

In the out patient department of the Hospital for Sick Children, Toronto, about 800 tonsillectomies are performed yearly. A strict urinalysis of sugar, albumin and acetone is made prior to the administration of any anesthetic. Seven hundred and sixty cases were operated upon and notes were taken during the past twelve months. It was found that of this number 24 or 3.2% showed albuminuria. In 19 of these the albuminuria was associated with casts. In 22 of the 24 cases, frequent examinations having been made after the operation, it was found that the albuminuria and casts had entirely disappeared in from one to six weeks.

In two cases the casts and albuminuria persisted after eight and twelve months respectively. The cases seem to bear a definite relation to the time of the year, 79.1% occurring during the first five months, as follows: January 4, February 3, March 3, April 4, May 5, June 2, August 1, November 1, December 1. From this it will be seen that by far the larger proportion of the cases occurred during the earlier months of the year. The personal history of these cases revealed the fact that nearly all had at one time suffered from contagious fevers. Of the twenty-four, eighteen had suffered from measles or scarlet fever, seven had both diseases, ten gave a history of purulent otitis media, nine had recurrent attacks of tonsilitis and two had twice been attacked with acute rheumatism. Two had had previous attacks of nephritis.

Condition of the teeth, under examination, showed seven with badly decayed teeth. Examination of the lungs showed two with persistent cough, one already cited as having persistent albuminuria, was markedly tubercular.

Examination of the spine showed one alone with scoliosis. It is interesting to note that in the orthopedic service in the hospital only 0.5% of the admissions covering the same period showed any signs of albuminuria, casts or cellular elements.

As to the urinalysis, all showed severe albuminuria, six showed globulin as well, nineteen, as already stated, showed casts, twenty-one showed pus cells and eight blood cells. The specific gravity seemed to bear no constant relation, being under 10.15% in fourteen cases and over 10.15% in ten. Sugar and acetone were negative.

The reagents used to detect albumin were nitric acid and Spegliers' solution, the latter being a very delicate test, said to be capable of detecting albumin in a solution of 1 in 350,000. A saturated solution of ammonium sulphate was used for the detection of globulin.

All the tonsils were examined before operation and showed some definite pathological condition. The anterior and posterior pillars were infected and bound down by adhesions to the tonsils. The mouths of the crypts were prominent. When pressure was applied to the tonsils, usually a small amount of caseous material oozed from the follicles. Frequently, during the operation caseous foci would come into view.

The classifications of albuminuria are very numerous and very unsatisfactory. Sahli divides them into true or renal and false or accidental. Many authors write of a physiological albuminuria, but Senior, in his latest work on the subject, states most positively that albumin in the urine is always pathological. Neither of these writers, nor any other author ever suggests the association of albuminuria with diseased tonsils.

Had the above cases not been associated with diseased tonsils, they would most probably have been grouped under the term orthostatic albuminuria, a term first used about ten years ago, and seemingly meant to embrace the classes usually designated as functional, physiological or adolescent albuminuria, generally found in young men of 16 to 22 years of age. Tessier says that this condition is due to faulty development, causing increased glomeruleral permeability. Erlanger attributes it to vaso-motor instability with diminished pulse pressure, whilst Jehle considers the causation due to a lordosis causing interference with the renal circulation. Many German authorities incline to this view, but Gortzky denies its influence in toto.

Rowland of Cleveland in a recent review of the literature, states that the French long ago pointed out the close relation existing between albuminuria and tuberculosis, using the term pictuberculous albuminuria. It is quite possible that our case cited as not clearing up, might be classed in this category.

The following are the conclusions deduced from these observations:

I. That 3.2% of children with hypertrophied tonsils show an accompanying albuminuria with a mild nephritis.

II. That in the vast majority of cases, the pathological condition rapidly clears up after tonsillectomy.

III. This condition is most frequent during mid-winter and early spring.

IV. Spinal curvature plays a very small part, but when present, may be an accessory etiological factor.

TUBERCULOSIS IN CHILDHOOD.

BY

J. H. ELLIOTT, M. B.,

Associate in Medicine and Clinical Medicine, University of Toronto.

A recent writer has said: "The history of tuberculosis in childhood presents one of the most remarkable records in the whole domain of medicine." (1) Until very recent years the great prevalence of the disease was not realized. We knew that between the ages of 15 and 35 forty per cent. of all deaths were due to tuberculosis, and it was looked upon as a disease of young adults. We were astonished when Harbitz (2) of Christiana, Hamburger (3) of Vienna, Comby (4) of Paris, Still (5), Hand (6) and others published pathological records showing that 35 to 42 per cent. of all children who died had foci of tuberculosis.

In looking over the literature I turned to my Laennec that inexhaustible mine of

information upon tuberculosis and find this in a foot note by Meriadec Laennec, relating to researches made by M. Lombard in the Children's Hospital in Paris, "of the children who die in their first and second year tubercles are found in one-eighth, in two-sevenths of those who die from two to three, in four-sevenths of those who die from three to four and in three-fourths of those who die from four to five. In the succeeding years up to puberty, tubercles are more frequent than before the fourth, but much less frequent than from the fourth to the fifth. According to M. Papavoine of the same hospital, the total number of tuberculous children between the fourth and eleventh year, is greater than those who are not tuberculous, tubercles being particularly prevalent from the fourth to the seventh year. Their frequency is again increased about the twelfth and thirteenth year, and at fourteen and fifteen the degree of prevalence is the same as at four and five. These results are obtained from researches made on 920 children (388 boys and 532 girls) between the ages of two and fifteen, and out of the whole number no less than 538, somewhat less than three-fifths were tuberculous" (7).

Truly much of our knowledge has to be re-discovered.

To bring the matter nearer home, our last available census figures in Canada show that in one year 1942 children under 15 years of age died in the Dominion from tuberculosis, almost as many deaths as in adults in the decade 25 to 34 (2110), and more than in the decade 35 to 44 (1275) from the same disease. It is then responsible for a large number of deaths.

But besides the deaths from tuberculosis in childhood, we know it is responsible for much illness which is not fatal until later in life.

By means of the tuberculin test it has been claimed by Hamburger and Monti (8) that of children in Vienna 3 years old, 20 per cent. have been infected, of those from 7 to 8 years of age, 70 per cent. and of those 14 years of age, 90 per cent.

Children are not born tuberculous but are infected after birth. This occurs most readily where there is a case of tuberculosis in the home, especially when the mother is tuberculous or when the father, a brother or sister have more advanced tuberculosis.

Infection from milk, butter and cream is not a negligible factor, but is secondary in importance to the human source. Rothe (9) investigated 400 cases in children in Berlin and estimated that 98.68% were human infections, and only 1.32% were bovine. Park of New York, on the other hand, reporting on over 500 cases considers 6 to 12% of tuberculous disease in children to be of bovine origin.

Hamburger and Monti estimate that among children infected during the first two months of life practically all die of the disease, of those infected at end of first year 50% overcome it, at end of second year 80 per cent. recover or do not develop marked illness, while from the fourth year onward the mortality is much less, dropping as low as 2 per cent.

The manifestations of tuberculosis in childhood are vastly different from those in the adult. In the adult, no matter what form of tuberculosis may be present, pulmonary involvement is practically always present and pulmonary tuberculosis is the most common form, causing in Canada over 92% of the deaths from tuberculosis.

In children it is the lymphatic system which shows most frequent involvement.

Here let me refer again to my Laennec. In 100 adults dying of tuberculosis Lombard gave as proportional frequency of the organs tuberculated:

Lungs	100
Intestines	26
Mesenteric glands	19
Bronchial glands	9
Cervical glands	7
Spleen	6

and other organs a less number.

But in 100 infant subjects the figures are:

Bronchial glands	87
Lungs	73
Mesenteric glands	31
Spleen	25
Kidneys	11
Intestines	9
Nervous tissue	9
Cervical glands	7

and other organs a less number.

In children tuberculosis of the lung seems to be an involvement from the adjacent bronchial or mediastinal glands, while in practically all cases of generalized tuberculosis there are to be found cheesy glands either in mediastinum, root of the lung or mesentery.

Tuberculosis of the mediastinal glands is then important not only per se, but as an important factor in the dissemination of tuberculosis elsewhere in the body. If we can confine the disease to these glands the child's health will not in most instances suffer severely. Hence the importance of their recognition and of their adequate treatment when present.

As already stated, tuberculosis in children most frequently is present as a lymphatic tuberculosis, when bones, joints, skin or other tissues are affected there are usually in addition to constitutional signs, the local or focal symptoms and physical signs which assist in making a diagnosis in most cases comparatively easy. On the other hand, children may have marked tuberculosis of the mediastinal, bronchial and mesenteric glands with little or no constitutional disturbance and even with no focalizing symptoms. Wasting may not be present even with advanced and active disease and marked enlargement of the glands is seen with no cough present.

In many cases the diagnosis is no simple matter and the physician's resources are often taxed to the utmost in arriving at a positive opinion in the matter. Although a diagnosis is most important especially in the presence of constitutional symptoms this condition has not up to the present received the attention it deserves. The symptoms may be divided into constitutional or toxic, and focal, the focal symptoms being for the most part pressure symptoms—pressure exerted upon the vascular, bronchial and nervous tissues.

The onset is usually insidious, the toxic symptoms developing gradually and in irregular order, those most frequently met being loss of appetite, languor, disinclination to play, or easily tired at play, irritable temper, diurnal drowsiness, anemia, stationary weight or actual loss, all without obvious cause.

Pressure may set up cough, hence this may be a rather late symptom, this may be slight or very troublesome and the nature of the cough will vary with the accompanying bronchitis. The typical cough is paroxysmal or spasmodic in character suggestive of that of pertussis, but is rarely as prolonged or severe, and when no bronchitis is present may partake of a dry brassy character. The fever may be slight and markedly irregular in character. In

some, night sweats are a marked feature.

The limits of this paper will not allow one to deal in detail with the physical signs of glandular tuberculosis.

The child may be frail and delicate, anemic and obviously out of health, yet in many cases the child is a picture of good health. The chest must be examined for unilateral and bilateral flattening and retraction as well as for unequal or limited expansion. All superficial and deep palpable glands of the body are to be examined for enlargement, especially the cervical axillary inguinal and abdominal. Careful percussion of the thorax may reveal much—with especial attention to the sternal, parasternal, vertebral and paravertebral areas. Auscultation also is of value, especially the study of voice conduction.

X-Ray.

The X-Ray is of service in helping to confirm the findings made by other means of physical exploration. Either the screen or plates may be used. Enlargement of the thoracic glands sufficient to throw a shadow on the plate, or to produce physical signs may be due to other diseases and a tuberculin test is desirable to assist in making a diagnosis.

The tuberculin test, preferably Von Pirquet's or Moro's should be used but with a judicial mind. During the first two years of life these tests are most useful, even up to five years of age, but in older children we must remember that a large proportion have become tuberculized and may react in the presence of a quiescent lesion. There is no doubt now that a positive test means the presence of tuberculosis (anatomical, not necessarily clinical.) Yet, children with active disease may not react, and the most marked reaction may mean good resistance in the individual—and has no relation to the extent of the disease.

Treatment and prophylaxis go hand in hand.

Children being so susceptible to tuberculosis, should be removed from the source of danger. The environment of open infection must be changed. Either the open case should be removed from the child, or the child from the home. Let me briefly outline the means available and the methods adopted in Toronto to secure this end.

1. Compulsory notification of Tuberculosis.
2. Homes of reported adult cases visited by municipal nurses.
3. If children in home, and sanitary precautions are difficult to establish, there is an endeavor to send the adult away to a sanatorium or hospital, thus removing source of infection.
4. House is disinfected by the health officer.
5. All children sent to Heather Club Clinic for examination, irrespective of presence or absence of symptoms of tuberculous infection.

If children are found to be infected we have at our disposal:

(a) Children's Department at Weston for advanced cases.

(b) Sanatorium in Muskoka for older children with slight open disease.

(c) Heather Club Pavillion at Lakeside Home for 7 months in year for non-pulmonary cases.

(d) Hospital for Sick Children for surgical tuberculosis requiring treatment.

(e) Daughters of Empire Preventorium for closed cases who must be removed from home.

(f) Visiting Nurses of Health Department for those who can remain at home.

(g) Open-air school through summer for those at home. This to be extended soon to all year open schools for such cases. We know now that it is wrong to send the delicate child with tuberculosis of glands, bones or joints to the ordinary school. Every city should have either special outdoor schools or special rooms in the ordinary school where these children

can get their education while becoming well and strong.

6. All cases with positive diagnosis who remain at home are kept under observation at Heather Club Clinic reporting at suitable intervals.

All children in infected households report for further examination at suitable intervals or when sent by visiting nurse who may have noted suspicious symptoms.

7. Appropriate medical treatment by clinic for symptoms which may present, including tuberculin in suitable cases.

8. Medical inspection of pupils in the schools. Many of the cases sent to the Heather Club Clinic from non-tuberculous homes are referred for examination by the school inspectors because of symptoms suggesting tuberculosis, noted during their inspection.

Children with glandular tuberculosis and all children who have been in an environment predisposing to infection, should be carefully guarded from the childhood infections, especially measles, scarlet fever and whooping cough. These diseases so lightly spoken of as children's diseases and against which so little precaution has been taken in the past in many communities, are frequently the determining causes in an acute spread of a tuberculous process within the thorax. We are beginning to appreciate that they are not always to be disregarded and we must now realize that to the tuberculous child they may mean the lighting up of a quiescent focus and be followed by chronic cough and ill health.

A tuberculous child must be guarded from all acute respiratory catarrhs, and be brought up in the open air as far as possible, so as to be resistant to any invading organisms.

Of tuberculosis it is emphatically true that prevention is better than cure. Our increasing knowledge of the prevalence of tuberculosis in childhood and of its various manifestations should lead to the adoption of those practical measures, some of which have been touched upon, which may lead to the prevention and arrest of all forms of tuberculosis occurring in infancy and childhood.

11 Spadina Road, Toronto.

BIBLIOGRAPHY.

1. Pritchard, Tuberculosis in Children—*The Practitioner*, Jan., 1913.
2. Harbitz, *Untersuchung über Lokalization der Tuberculose*, 1905.
3. Jahrbuch. *f. Kinderheilkunde* T. LXII, S. 517, 1905.
4. *Presse Med.* p. 766, 1906.
5. *Brit. Med. Jour.*, August 19, 1899.
6. *Medical News*, p. 994, Nov. 22, 1902.
7. Laennec, Diseases of the Chest, 4th English Edition, London, 1834. Footnote p. 307.
8. *Münch Med. Wochensch.*, LVI, p. 449, 1909.
9. *Deutsche Med. Wochensch.*, Feb., 1911, p. 343.
10. Laennec, Ibid. Footnote, p. 266.

FRUIT-ADDITION TO THE DIET OF THE GROWING CHILD.

BY

GEORGE DOW SCOTT, A. B., B. S., M. D.,
Assistant Attending Physician and Instructor, Post-Graduate Medical School and Hospital; Chief of Clinic of Post-Graduate Dispensary; Chief of Infants' and Children's Clinic, St. Mark's Hospital; Consulting Pediatrist, Nassau Hospital.

Fruit used as a food is no new thing—savage tribes in the past and savage tribes at the present, for the most part, outside the Arctic zone, subsist almost wholly upon fruit and nuts. The eating of fruit and nuts not merely as a relish, but as a food, is highly commendable. Such a diet is very nutritious. It is hard to fully agree with Edward Carrington, however, that such a diet is of more nutritive value than is meat. He mentions the investigations of Professor

M. E. Jaffa to confirm his theory that a fructarian diet is so important. Two persons lived on such a diet for three years. Their three children though underweight and undersized, were healthy, strong and unusually free from colds and other complaints incidental to childhood. Less food was shown to be necessary than with a cooked meat and vegetable diet. Many subjects of his experimentation gained weight on this diet, one gaining seven pounds in less than three months.

Carrington believes fruits to be true foods. Under-nutrition, as Davis points out, prevents the young from a ripe old age, and I may add, that over-nutrition brings on premature death. Under-nutrition usually means to the laity a scarcity of meat in the diet. Such an idea is wrong, for it may mean a too rich meat diet with abstinence from fruit, vegetables, cereals and nuts, which form a liberal food valuation. It is wrong to be a vegetarian or to be a fructarian. Such a diet without meat, is wholly unsuited to the growing child. Major McCay, as quoted by Brice, sums up his experiences with the natives of the plains of Lower Bengal, and the Hill tribes of the same department. He finds that pure vegetarianism and fruit eating as practiced by the Bengalese and Beharis Indian tribes is unsuited, detrimental to health, inhibits ambitions, degrades and causes increased peristalsis, thereby throwing out the food before it is sufficiently assimilated and digested. He found that even when the body organs were in a healthy state the excessive amount and bulk of food in the alimentary canal prevented absorption. In the Bengalese, not more than 55% of the protein was absorbed. Although an advocate of much fruit in a child's diet, I would not have it understood that I am a faddist. The terrors of excessive meat eating are seen daily by pediatrists in their practices, in the hospitals and in the dispensaries. Intestinal poisoning with all its attendant results cutting a wide path toward the goal of rheumatism, gout, neurasthenia, sleeplessness, neuralgia, sciatica, diseases of the liver, blood and blood vessels, and towards a host of other complaints should be better appreciated. Meat in small amounts is absolutely essential to a child's growth. Certain meats contain a large percentage of albumin, and the nuclein of meat is easily absorbed and assimilated in the body. Jebbink, working in Professor Salter's laboratory at Amsterdam, has shown that the nuclein forms the basis of cell nuclei from the nucleo-proteids of which the nuclein is freed during the process of digestion. These nucleo-proteids moreover are found in the thymus gland, in the spermatozoa, in the glands of internal secretion, and in the brain. The nucleins exist in the body, as can be seen in large quantity, and are most rapidly assimilated. It is to be remembered that sweetbreads, kidneys and liver are rich in lecithin, and in phosphorus, and are important in the diet of the young. However, the nucleins form purin bases during the disintegration process, and from these uric acid is formed, an excess resulting in gout, rheumatism, increased blood pressure and the like. Many of the bad results from a moderate meat diet spring from its faulty preparation. When the elastic fibres and the connective tissue are converted into a gelatinous mass the digestive fluids act more easily upon them.

Many authorities are at present interesting themselves in this vital work on food value. Sager says in part:

"Flesh foods are commonly regarded essential to physical and to mental vigor, but are often inferior in nutritive value to many plant foods and to fruit. Fructarians point to the fact that meat putrefies quickly, while nuts and fruit decay slowly—they believe the latter food to be therefore, purer and more fitted for the ideal diet." An excess of meat is usually forced upon the child when young to the exclusion of other foods, thereby creating an artificial appetite for it. This practice has come to be a national curse. Sensible animals do not eat more than they require, and the average child if allowed its natural inclinations prefers a varied diet. Food to the child, as to the grown person must be attractive, and the most attractive food in the world is raw, luscious ripe fruit.

Moses has said "Out of the ground made the Lord God to grow every tree that is pleasant to the sight and good for food," and again, "when the woman saw the tree was good for food, and that it was pleasant to the eyes, and a tree to be desired to make one wise, she took of the fruit thereof and did eat, and gave also unto her husband with her, and he did eat."

To my mind no other food in its natural state is so calculated to afford pleasure to three out of five senses of a child as fruit. The eye is pleased with the varied forms and colors of the fruits, and ripe and luscious it yields a peculiar charm and fragrance to the nerves of smell—and to jaded appetites.

Food, warm, and not too hot, is rarely given to the child. Parents tend to give their childrent too hot food, in fact. Raw fruit and nuts tend to overcome this difficulty. All heat excites through expansion an increased activity, but the activity is not normal in the case of food eaten hot, says Graham. Again, the sensory nerves of the lips and the nerves of taste are weakened by hot food, and they no longer can test it. At the same time the sense of smell is blunted, the enamel of the teeth is destroyed, making them unfit for mastication, therefore, the food goes to the stomach unprepared. The mucous membrane of the stomach becomes hyperemic and the mucous glands engorged. Graham, therefore, believes that a person who lives on uncooked food, as fruit and nuts, would make better use of his teeth, masticate better, insalivate it and eat it at the proper temperature. Still again, through prolonged boiling or over-cooking, lime and phosphorus may be withdrawn from the food causing the teeth of the children to suffer through faulty nutrition and from poor blood supply, for, as is well known, the quantity and composition of the child's blood is influenced strongly by certain foods and drinks affecting the ductless glands, which in turn influence the formation of blood and regulate blood pressure. Schlickeysen says in substance:

"Uncooked fruits especially excite the mind, to its highest activity. After eating we feel inclined to vigorous exercise, to an increased capacity for study and mental work. Cooked food often causes a feeling of satiety and sluggishness."

Of cooked food, Graham even says, "All processes of cooking or the artificial preparation of foods are detrimental to the physiological and psychological interests of man."

Hereward Carrington pronounces fruit and nuts the greatest food for man which can keep him in the highest state of health with the bodily functions normal. Such a diet gives great energy. He strongly condemns meat, game, fish, soups, vegetables, grains, flours, cereals, milk cheese, butter, eggs, dairy products, stimulants, and jellies as absolutely unfit for food or drink. The addition of raw fruit, its juices together

with cooked fruit to the daily diet keeps the child in perfect health with buoyancy of feeling, good humor and in satisfaction with the world at large. This is partly due according to Tibbles to the organic salts which arouse the appetite, aid digestion by increasing the flow of saliva and indirectly of the gastric juice. They are stimulants and sialogogues. As the fruit reaches the intestines the acids increase the activity of the chyme, stimulate the secretions of the liver, of the pancreas, of the intestinal glands and of the muscles, and they render the blood less alkaline, but never acid. Combining with a portion of the alkaline salts of the serum, the phosphoric acid increases the phosphates in the red blood cells. They are, moreover, antiscorbutic and also of value in anemia, general debility and convalescence from acute illness. Fruits are also supposed to contain a minimum amount of earthy matter which certain authorities contend is the chief cause of obstruction in the intestines and the causative factor of ossification and old age according to Carrington.

No drug to my mind can compare with fruit and its juices in the cleansing of the intestinal tract of the products of fermentation and decomposition. Dr. Victor Panchet of Paris when asked the best foods for a patient in preparation for an operation said: "It is necessary to give foods which besides being devoid of toxins should be bad culture media for germs in the intestines." A fruit regime fulfils such a condition and fruit juices contain purer water than the best spring water.

The American mother gives the child fruit for a pleasurable purpose and not for food. Sylvester Graham speaking on this point remarks: "It should be remembered that fruit of every description if eaten at all should be eaten as food and not as mere pastime or from gustatory enjoyment." It should therefore, be eaten at table and constitute a portion at least of the regular meals. He maintains that all cooked food even under the best regulations impairs in some degree the power of the stomach to digest.

The tonic effects of fruit and their juices I have repeatedly seen. In fact Lorand writes that some fruits are richer in iron and lime than ordinary foods. For the stomachs of weak children I advise cooked fruits. Some are more digestible when cooked as this cooking softens the cellulose coverings, but unfortunately fruit loses thereby a portion of its nutrient salts and also some carbohydrates. To my strong children I advise unpeeled fruit when possible, as in peeling much nutritive value is lost in the skins. The peeling of fruits removes the upper layer of the fruit meat and many of the flavoring substances are lost as this part is rich in them.

A child is first attracted by the sight of the fruit and then instinctively smells it. The fine aroma so much enjoyed is caused by the ethereal oils contained in the cells of the skin. The child should be given well ripened fruit. In ripened fruits the quantity of acid and of cellulose is lessened. The sweetness of a fruit can often be determined by outward appearance. Truelle after many years' observation found that fruits with yellow skins contain much sugar with but little perfume. As a general thing, he says, fruits with glossy skins are juicy but possess strong odors. Therefore, to obtain a sweet fruit without much acid, fruit should be allowed to hang on the tree until ripe. As fruit ripens, Thompson says, it absorbs more and more oxygen and the tannins and vege-

table acids which it originally contained are altered so that it becomes less astringent and acid, the starch is more or less turned into levulose or glucose and soluble pectin is formed. The aroma and taste he says depend on the relative quantity of these different substances together with certain volatile ethers and oils in the skins. It is well for the mother to remember that the more luscious the fruit the more soluble are the sugars and the special flavoring substances it contains. Lectin is a soluble carbohydrate substance in ripe pulpy fruit. It enables fruit to gelatinize when boiled with sugar. Pectose and pectase are similar substances in unripe fruit.

The albuminous products of raw fruits are easily assimilated in the intestines. Hutchinson reports that 80% of fruit proteins, 90% of fruit fat and 95% of fruit carbohydrates are absorbed.

Alexander Brice speaks strongly against the cooking of fruit. He believes that such cooking creates great acidity making the fruit less digestible than when in the raw state. It has been asserted, he says, that fruit contains enzymes in the form of oxidases and diastases from which the body may derive benefit and which are destroyed in the process of cooking and the increase of acidity suggests that some volatile alkaline ingredient has been driven off by the heat which would serve to neutralize the harmful acid ingredients or render them more tolerable to the body juices. It may be indeed that some valuable natural chemical salt is decomposed and that in this way the body is being robbed of some essential nutrient.

Davis on the other hand thinks that cooking makes fruit more digestible, as it softens the cellulose and converts the gums (lectin) into a gelatinous mass, but he also admits that if fruit is cooked in water a part of its nutrient value is lost. For years I have insisted that a part of the child's diet should be fruit, raw or cooked. I prefer the raw where no contra-indications prevent. I warn the mother against unripe fruit or even ripe fruit taken in too large quantities on account of possible intestinal disorders. Fruit and fruit juices should then be given to the growing child for the following reasons:

1. They are appetizing and palatable.
2. They are very refreshing.
3. On account of their nutritive values.
4. On account of their salts.
5. On account of their diuretic actions.
6. On account of their laxative actions.
7. On account of their tonic actions.

It is to be believed that the water contained in the raw fruit juices of certain or of all fruits enjoys a particular property or a special vitality, "tang," "electrical reaction," or whatever it may be called. As Pascault so strongly points out—this peculiar "vitality" simulates that of a mineral water. Observations have convinced me that although possibly the pasteurization or even the sterilization of milk may do no harm to its nutritive value, yet it robs it of some individual characteristic which makes it acceptable to the bottle fed infant. By adding to the diet the juice of a fresh ripe pineapple this lack or loss is remedied.

The carbohydrate content of fruit is glucose, levulose and saccharose although the latter exists in a very small amount and diminishes in proportion to the ripeness of the fruit. This levulose or fruit sugar represents starch in the state of complete digestion and ready for instant absorption in the body. It is supposed to prevent the formation of acetone. The final stage of

the digestion of fruit is the conversion of fruit acids and salts into alkaline salts, chiefly carbonates. Owing to this alkalinizing property of fruit and its juices it is excellent in a diet rich in meat and vegetables controlling a rheumatic or gouty diathesis.

Marmalades and jams can be readily given to children at meals. These delicacies are made by boiling the fruit in strong syrup. Their chemical composition is sugar, fruit and fruit juices.

To the criticism that fruit has nothing of nutritive value I offer the following table by Balland of certain of our popular fruits.

Having discussed fruit and its juices collectively it is well to analyze them individually. Carrington well calls the apple the "King of Fruits." The raw, unpeeled apple should be washed for Sartori has found harmful bacteria on fruit twice washed. The apple is a food for it contains, according to Carrington, abundance of potash, soda, magnesia and phosphorus. He believes it to be a valuable brain and nerve food. The natural acid of this fruit is invaluable for the teeth and gums, for the stomach and intestines, for it has an antiseptic and germicidal quality. It supposedly decreases hyperacidity in the stom-

FRUIT JUICES.	Invert sugar gram.	Cane sugar gram.	Acids gram.		Tannins precipitated by alkalies, gram.	Ash gram.	Potash gram.	Phosphoric acid gram.
Apple	9.43	3.11	0.321		0.115	0.44	0.209	0.019
Cherry	12.81		0.753		0.088	0.45	0.097	0.021
Strawberry	5.33		1.040	Lectin	0.560	0.64	0.097	0.026
				Lectin	0.960			
Raspberry	5.33		1.846		....	0.50	0.086	0.032
Huckleberry	6.27		1.130		0.061	0.29	....	....
Gooseberry	6.12		1.650	Lectin	0.754	0.27	0.140	....
Currant	8.35		2.920		0.224	0.59	....	0.036
Bilberry	8.57		2.200	Lectin	0.760	0.30	0.76	....
Peach	3.85		0.0684		....	0.47	....	0.046

To the diet of young, pale, chlorotic girls at or near puberty having a well nigh uncontrollable desire for sweets, I have added with great success raw fruit and its juices together with dried dates and figs.

In a study of the diet of women students at Lake Erie College in Ohio in 1900 by Mabel Bevier and Elizabeth C. Sprague an increase of fruit eating, especially at breakfast gave greater appetite and lessened the desire for sweets.

ach of the child and acts as a fine tonic. A healthful laxative it is more easily adjusted to the human needs than any one single fruit that I know. However it is practically impossible to live on it alone for any extended time. Fresh sweet cider, made from the apple, is, I believe, even a better drink than pure water. The average composition of apple juice in one liter according to Lorand is

Sugar	126 grams
Organic acid	2 "
Tannic acid	3 "
Pectin bodies	9 "

Certain apples are borne by children's stomachs better than others. A sweet pulpy ripe apple is most easily digested. The snow apple fairly melts in the mouth. This fruit exerts a marked alkalinizing effect due to its organic acids. In the rheumatic or so-called growing pains of children it has proven in my hands of great benefit. Montewis' is very refreshing for the child in summer. A large apple is cut up into eight pieces. One-half liter of boiling water is added to it and allowed to simmer for two hours. Two or three slices of lemon is then added to improve the taste, the mixture afterwards being sweetened as desired. Rinsing the mouth with apple juice is a good antiseptic and cleanser of the mucous membrane.

According to J. Koenig in 100 cubic centimeters are contained:

FRUITS.	Water content per cent.	Nitrogen per cent.	Salts per cent.	Sugar per cent.	Other carbohydrates per cent.	Cellulose per cent.	Salt per cent.
Apricots	87.70	0.93	0.12	8.10	1.60	1.41	0.64
Pineapple, in can	75.70	0.60	0.00	18.40	4.35	0.57	0.24
Bananas, peeled	73.40	1.44	0.09	21.90	2.03	1.22	0.92
Figs, fresh	84.80	0.79	0.22	8.30	3.85	1.23	.071
Strawberries	85.60	0.31	0.03	3.30	0.80	0.36	0.21
Raspberries	82.60	1.60	1.11	7.14	3.04	3.91	0.60
Medler pears (acid)	92.60	0.61	0.07	2.90	1.40	0.23	0.69
Peaches	86.60	0.48	0.48	6.70	3.63	1.19	0.51
Pears	88.50	0.04	0.04	6.40	3.73	1.12	0.17
Apples	82.60	0.06	0.06	8.90	5.51	1.21	0.28

I understand that in some regions where many apples are eaten and sweet cider drunk that renal calculi are rarely observed due presumably to the infrequency of uric acid concretions. Sour apples are not for weak stomachs—they contain too much cellulose for one thing. An apple fit for a child to eat should be soft enough to be squeezed in the hands on slight pressure. Many baked apples and much apple sauce are very important in the child's dietary if made from fresh ripe fruit. Apples which ripen in the summer contain less cellulose and are easily digested. In acute and chronic constipation this fruit acts wonderfully. A delicious drink, an apple tea, a recipe of

Another much abused but excellent fruit if ripened on the plant is the banana. It is seen in all stages of ripening and decay in the hands of our youngsters.

It has a larger carbohydrate content than the potato, 16-22%. When the banana is ripe for eating according to Lorand the yellow variety is yellow with a few black spots showing on the skin. In six bananas he found 330 calories. Dried bananas yielded 3,000 calories per kilo. This fruit may be fried, baked, made into omelets and used as flour when the carbohydrate content is about 80%. Moreover fresh ripe bananas yield of phosphorus 0.11% and of phosphoric acid 0.27%.

Banana flour should be made from the best quality of ripened fruit, served as a gruel or porridge with milk or cream and sugar it is very tempting to children. It has often been observed that more children can eat the fruit if, after the skin is peeled back the soft pulpy covering about 1/10 of an inch thick has been scraped off with a spoon. This pulpy covering is highly indigestible. Haig says bananas contain 74% of water.

According to Schall and Heisler the nutritive content of bananas is as follows:

	Albumin.	Fat.	Carbohydrates.	Water.	Cellulose.	Calories in 100 grams.
Fresh Bananas	1.00%	1.10%	18.20%	74.90%	.....	.....
Dried Bananas	4.57%	0.45%	64.48%	20.10%	2.80%	79.00%

But J. Konig gives the following:

	Protein.	Fat.	Carbohydrates.	Invert sugar.	Cellulose.
Fresh	1.40%	0.47%	21.57%	.....	0.60%
Dried	5.25%	2.25%	52.40%	29.12%	2.07%

Grapes are universally regarded as one of the best fruits. Cajus Phinius long ago called attention to this wonderful fruit. It stimulates the intestinal wall, it is antiseptic and disinfects the intestines through the agency of lactic acid formed. Injurious decomposition products are thus destroyed. This fruit is excellent in high tension of the blood vessels as it produces diminished viscidity of the blood. In rheumatism and in dietetic skin conditions resulting from intestinal decomposition and fermentation, in catarrhal jaundice and liver stasis with the formation of gallstones it is important.

Grape wine is highly nutritious containing a high percent of sugar, tartaric and tannic acids, nutrient salts, and the tartrates of potassium and of calcium. It is also rich in the phosphates of potassium and of calcium and the sulphates of potassium and calcium. This fruit is highly laxative on account of the sugar and tartaric acid content, and is also a most valuable diuretic. The Hungarian or certain Swiss grapes are to be preferred for their thin fine skins, small seeds and their abundant juice. In very small children it is best to seed the grapes, and, of course, no skins should be eaten.

Niemeyer says: Two to three pounds of grapes daily make persons fat. The sugar content he gives at 14, 18, 20% respectively, but only a small amount of albumin is present. Lorand gives the nutritive content as follows:

Water %.	Albuminous products %	Pectin bodies %.	Sugar %.	Free acids %.	Seeds %.	Ash %.
78.17	0.59	1.96	14.36	0.79	3.60	0.53

Great benefit is derived from grape injestion in phthisis and other wasting diseases. Sweet grapes contain a high percentage of water in a pure form, also a glucose or grape sugar which is easily assimilated by a weak stomach. The juice of this fruit is very beneficial in gastric and intestinal atony and indirectly in bronchitis and heart disease.

Grapes contain of

protein	0.41%
fat	0.56%
manganese oxide	0.24%
water	75.60%
other carbohydrates	2. %
cellulose, less than	2. %

In ¼ kilo Lorland found 750 calories were contained.

Raisins or dried grapes are most beneficial, healthy and nutritious. Of protein raisins contain, according to Haig 8-10 grs. to the ounce. Carrington believes that it is possible to live on grapes alone for a long period, for several weeks, in fact, owing to a high percentage of carbohydrates and food salts.

Fresh figs contain 60-70 per cent of sugar, a large amount of food salts and 0.21% of manganese oxide. The Orientals prize them in diseases of the kidneys, bladder and in gouty and rheumatic conditions. Smyrna figs, I think, are easiest to digest and are sweet as honey. Of phosphorus these figs contain 0.70%, of phosphoric acid 0.17%. Dried figs contain too much cellulose to be easily digested, at times 7.82% according to Balland. He gives the composition of figs as:

	Protein.	Fat.	Sugar.	Other carbohydrates.	Cellulose.	Ash.
Fresh Figs	0.79%	0.32%	48.30%	3.85%	1.23%	0.21%
Dried Figs	2.36%	2.10%	48.40%	5.27%	7.82%	3.15%

Plums and prunes are well digested when ripe and tender. Prunes are a great laxative. Their skins are hard to digest, however, and had best be removed through soaking. Of manganese oxide plums contain 0.23%.

According to Balland dates contain:—

Protein.	Fat.	Sugar.	Other carbohydrates.	Cellulose.	Salts.	Phosphorus.
1.16%	0.06%	51.30%	15.80%	5.06%	1.32%	0.12%

and twice as much phosphoric acid as do figs or around 0.29%.

Where children are susceptible to the fermentation of sugar, dates can be added instead of sugar in the cooking of food.

Cherries are easily digested if juicy, thin skinned and in season. Delicate stomachs cannot tolerate the skins, however. Their juice is delicious and refreshing. This fruit exerts a useful laxative action upon the bowels. Cherries contain of manganese oxide 0.82%, of sugar 10-12%, and the alkalinizing salts of potash, lime, iron, and more phosphoric acid than most any other fruit.

Apricots and peaches when ripe are well digested.

Raw fruit juices often take the place of a craving for sweets and alcohol. The juices of the orange and lemon are easily and usually borne by the most irritable stomach and are very digestible. I consider pineapple juice the best raw fruit juice I know of; it contains peptogenic and digestive properties. Balland gives the fresh juice 12% sugar and 87% water. Canned pineapple contains of sugar 18.40%, of other carbohydrates 4%, of raw fibre 0.57%.

Pineapple juice sprayed upon the mucous membranes of the body cleanses and stimulates them. The sugars found in these fruits are partly grape and partly levulose with some cane sugar. Sprayed upon the mucous membrane of the throat it allays inflammations and irritations. Lemon and orange juices are germicidal, antiseptic and also anti-scorbutic. Pineapple juice acts best in a neutral medium, but it digests in both acid or alkaline solutions. 3 oz. digests 10-15 grs. dried albumin in four hours (Thompson). There is also a milk curdling ferment in the juice.

Grape fruit contains citric acid and other

acids, but very little sugar. It is also a mild laxative. Lemons, like grape fruit, contain very little sugar. According to Lorand the orange contains:—

of Invert sugar	3. 9%
of Free citric and malic acids	1.93%
of Potassium citrate	1.39%
of Calcium citrate	0.25%

and very little sugar.

J. König gives the following composition of certain fruits and berries based on a series of analyses:

Fruits.	Water.	Nitrogen.	Sugar.	Other carbohydrates.	Cellulose.	Carbon.
Prunes	81.18%	0.78%	6.15%	4.92%	5.41%	0.85%
Gooseberries	85.74%	0.78%	7.03%	1.91%	3.52%	1.15%
Cherries	79.82%	0.67%	10.24%	1.76%	6.07%	0.91%
Strawberries	87.66%	0.57%	6.28%	6.48%	2.32%	0.93%
Currants	84.79%	0.51%	6.18%	0.90%	4.57%	1.15%

When ripe, berries are usually easily digested, but sometimes in the ripe fruit and always in the unripe the seeds are irritating to the intestinal tract. Weiss in Bunge's laboratory found strawberries were useful in gouty and rheumatic conditions. Strawberries do not contain much sugar, and through chemical reaction sometimes cause rashes and intestinal disorders in great meat eaters. Raspberries when ripe are more easily digested than strawberries while currants and gooseberries are most indigestible, their seeds being large and coarse Strawberries contain a large amount of iron and can well be given to anemic children. Blueberries and huckleberries having a mild astringent action on mucous membranes are very beneficial in inflammations of the throat for instance, and act as a tonic to the intestinal tract and as an antiseptic to a diseased alimentary canal. Blackberry juice, when the berries are squeezed in a bag is very refreshing.

Owing to the nutritive value of fruit, to its alkalinizing, to its diuretic, to its laxative, to its antiscorbutic, to its tonic and to many other effects, I believe fruit should be given more freely and understandingly to children as a food.

There is absolutely no foundation for the popular prejudice against fruits and melons as a cause of summer complaints. Unripe or overripe fruits frequently cause bowel disturbances; as also do the germs which lurk upon the outside of fruits, and which find their way into the stomach and bowels when these are eaten raw without washing. Otherwise the juices of fruits and melons are wholesome food beverages.

PLANS FOR SUMMER WORK IN COMBATTING DISEASES OF INFANCY IN NEW YORK CITY.[1]

BY

ERNEST J. LEDERLE, Ph. D.,
Commissioner of Health,
New York City.

The work of the Department of Health for the reduction of infant mortality will be conducted during the coming summer along lines which have been gradually developed and placed in full operation during the last few years. Before outlining these plans in detail, it may therefore be helpful to recall briefly the history of the development of this function of the Health Department.

In 1876, the Department of Health, having recorded an unusually high mortality among infants, applied for and obtained a special appropriation for the employment of a staff of physicians during the months of July and August. These physicians were known as the "Summer Corps" and they were assigned to duty in the con-

[1]Read at a meeting of the New York County Med. Society, June, 1913.

gested tenement house regions of the city where they treated all sick babies whose parents were unable to obtain medical care.

This plan was followed each summer for many years and without doubt has been a contributing factor in the steady decreases in the number of infant deaths during the last thirty years. The effectiveness of the work was limited, however, because its purpose was limited to the treatment of sick babies rather than the prevention of illness.

In 1902, 17 trained nurses were employed by the Department primarily for the work of school medical inspection. These nurses, however, assisted the physicians of the Summer Corps during the vacation months of July and August, and in house to house visits instructed mothers in the proper methods of preparing food for babies and demonstrating the correct principles of bathing, clothing and airing. Thus the real preventive work of the department was begun in a small way.

With the establishment of a special Division of Child Hygiene in 1908, the summer work for babies became an important function of the new division. In May of that year the Commissioner of Health had organized a Conference on the Care of Babies in an effort to coordinate and make more effective the work of public and private agencies. This was the first definite effort to prevent duplication of such work and the same idea is now carried out by the Babies' Welfare Association organized in 1912.

The Division of Child Hygiene was formed in the autumn of 1908 and the appointment of a staff of 141 nurses made possible an important extension of the preventive activities of the department. Since that time the department has endeavored to visit mothers as soon as possible after the birth of the baby and to provide continuous instruction in the effort to keep babies well rather than rely on curing them after they had become ill.

It was now possible to undertake lectures on the care of babies each week at the various recreation piers, public playgrounds and other social centers throughout the city. In cooperation with private agencies the department assigned medical inspectors and nurses to the infants' milk station conducted by the Brooklyn Children's Aid Society and the New York Diet Kitchen Association in 1909, 1910, 1911. Another idea which has been successfully developed and widely commented upon was the organizing of Little Mothers Leagues among the girls attending the public schools.

In 1911 another important step was taken in the establishment of municipal infants' milk stations. Successful as the work has been since 1908, it was still limited to a special campaign each summer, whereas the ideal of the department was to treat infant mortality as an all-year-round problem. An experimental appropriation for the establishment of fifteen infants' milk stations under the administration of the Department to be operated throughout the year was an important step in this direction. The New York Milk Committee and other private agencies operated a much larger number of stations and the result of the combined efforts was so encouraging in 1911 that the city authorities granted an additional appropriation for 1912 sufficient to increase the number of milk stations to 55. The appropriations are so arranged as to permit of doubling the staff of attendants during the six months from May to November, but the stations are operated throughout

the year and the work of the department, along the lines which have been described, is now ceaseless. Moreover, the efforts of all private associations and individuals interested in saving the lives of babies is now coordinated in a more effective way than ever before, by the Babies' Welfare Association.

PLANS FOR THE COMING SUMMER.

The methods which have been referred to will be carried out during the coming Summer under all the advantages of accumulated experience and improved organization. At each of the 55 milk stations a nurse is on duty all the time and a doctor is on duty two days each week. On May 1st, an additional nurse was assigned to each station for the extra work of the summer months. The milk stations are being developed constantly toward the ideal of educational centers and breast feeding particularly is encouraged as far as possible. The number of mothers who now come to the stations in order to obtain milk for themselves, so that they may nurse their babies, is encouragingly large.

On July 1st, all of the nurses now doing school work will be assigned to duty in the instruction of mothers. Each nurse will have 150 babies to care for and will work in a district which is not already covered by the activities radiating from an infants' milk station. This custom has been followed for the past two years with great success. The nurse visiting the baby as soon as possible after it is born and keeping it under continued observation during the hot weather. Every morning each group of two or three nurses meets with the department physician and consults with him regarding delicate or sick babies. If a child is not normal, the medical inspector visits it himself and refers the family to the proper dispensary or hospital to have the baby treated if necessary. In 1912, 38,000 babies were treated and 1,600,000 quarts of milk were dispensed at these stations.

Beginning this week, lectures on the care of babies are being given in all the public schools to all girls over 12 years of age in order to enlist their interest in the formation of the Little Mothers Leagues. These educational groups will be kept during the summer as usual, by weekly lectures and demonstrations by the nurses and doctors of the department.

The same splendid cooperation of private agencies which has been given hitherto is expected this year. About 80 different agencies are now federated in the Babies Welfare Association with its central clearing house for information and publicity at the Headquarters of the Department of Health.

PURE MILK.

In addition to the specific preventive work, the efforts of the department to steadily raise the sanitary quality of New York's milk supply constitute an important factor in lowering the infantile death rate. The strenuous campaign for the extension of pasteurization, which has been made the first object of the Department of Health during the present administration, has had a marked effect and the proportion of pasteurized milk to the supply has risen from 15% to 50% in two years. In round numbers this is equivalent to an increase in pasteurized milk from 300,000 to 900,000 quarts out of the daily supply.

The latest step in the direction of pasteurization has been the adoption of the requirement that after July 1, 1913, cream

shall be pasteurized, unless it is obtained from Grade A or Grade B milk. Increasingly stringent regulations of the sale of "loose" or "dipped" milk is also an important factor in the program of the Department.

COMPARATIVE STATISTICS OF INFANT MORTALITY.

Deaths under one year of age and death rate per 1,000 under one year of age, based upon estimated population at that age.

	(All Causes)		(Diarrheal Disease)	
Year	*Deaths*	*Rate*	*Deaths*	*Rate*
1902	15,526	168	4,090	44.28
1903	14,413	151	3,769	39.56
1904	16,125	164	4,726	48.08
1905	16,522	163	4,945	48.75
1906	17,188	164	4,943	47.08
1907	17,437	160	5,314	48.90
1908	16,231	144	5,118	45.45
1909	15,976	137	4,254	36.45
1910	10,212	134	5,807	47.97
1911	15,053	120	3,853	30.68
1912	14,289	110	3,392	26.39

INFANT MORTALITY IN NEW YORK STATE
1912

Deaths under one year of age from all causes. Rate per 1,000 births.

City	*Rate*	*Deaths*
Rochester	97.7	539
New York City	105.2	14,266
Yonkers	114.3	275
Binghamton	114.9	125
Buffalo	124.9	1,448
Schenectady	132.9	241
Syracuse	134.5	411
Albany	136.6	262
Utica	142.9	300
Troy	157.4	207
New York State, not including New York City	114.5	10,393

REMOVAL OF A FOREIGN BODY FROM THE NOSE.—When a foreign body in the nose is not easily removable with forceps remember Felizet's simple method—the injection of warm water into the opposite nostril. Use a syringe or douche nozzle that snugly fits the naris. Begin gently and slowly, then increase the force. As the resistance suddenly ceases, the foreign body is shot out (or at least is dislodged) by the presence of the fluid reflected from the posterior wall of the pharynx.—*American Journal of Surgery.*

THE ROLE PLAYED BY MILK IN INFANT MORTALITY.

BY

CHAS. J. HASTINGS, M. D.,
Medical Officer of Health, Toronto, Canada.

History teaches us that nothing but a calamity or an impending calamity will arouse mankind individually or collectively to a sense of their duty toward their fellow men. Practically every nation in Europe today has been aroused from its national somnolence by an impending national calamity, consequent upon their enormous infant mortality.

France was probably the first to recognize the hand-writing on the wall, resulting from their lamentable reduced birth rate and the wholesale slaughter of the innocents, and prepared for action, in order to stem the tide that was threatening their very national existence.

England's recognition of the fact that from 50-75 per cent. of those volunteering for enlistment in the army were physically unfit for service, resulted in an investigation by a Royal Commission, which revealed the fact that this condition of degeneracy was for the most part due to neglect in infancy and early childhood, insufficient and improper food together with unsanitary homes and environments. In fact, the value of infant life as a national asset was not realized until about the middle of the 18th century, and it was well on in the 19th century that the effect on infant mortality of improperly nourished and overworked mothers was first recognized.

While infant mortality is due to a complexity of causes, impure milk is decidedly the most important. When we consider that milk constitutes, or should constitute

practically the sole article of diet of infancy and early childhood, and that is is the most delicate food we have and the most sensitive to bacteria contamination, it is quite time that the control of our milk supply should receive consideration in the administration of public health.

Careful investigations have revealed the fact that in the civilized parts of the world over 3,200,000 infants under one year of age die annually, and that the average new born child, which is artificially fed, has less chances of living for one year than has a man of 80 years of age. Approximately 25 per cent. of all deaths in any country is of those under 2 years.

It is a lamentable fact that while the life of man has been prolonged by 10 or 15 years as a consequence of the advance in medical science and preventive medicine, yet our infant mortality still remains but slightly, if at all, reduced. Nearly a quarter of a century has elapsed since the appalling tide of infant mortality came home to thoughtful minds in Germany, France, Belgium, United States and more recently Canada, and so engrossed their attention as to stimulate a spirit of investigation, in consequence of which it has been demonstrated that this enormous mortality was largely from the ranks of hand fed children (90%), breast fed children only contributing about 10%, and also it has been observed that there was a marked seasonal fluctuation, having an abrupt upward curve for the midsummer months, and an equally sharp drop in the autumn. The marked increase in the months of July and August was found to be largely due to diarrheal disease, there being very little fluctuation of the non-diarrheal cases.

In Leipzig, for instance, the proportion of deaths to births in August was 571 to 1,000; of these, 430 were diarrheal.

Dr. Emmett Holt, in an interesting article on Diarrhea in Infancy and Early Childhood, says that of approximately 2,000 fatal cases which he had collected, only 3% were exclusively breast fed, and that in his experience fatal cases of diarrheal disease in breast fed infants had been extremely rare.

Dr. Holt goes on to say—it is surprising to see how quickly diarrhea is excited by impure milk. I once saw in a New York Infant Asylum, every one of 23 healthy children, all over two years of age, and occupying one ward, attacked in a single day with diarrhea, which was traced directly to the milk supply.

In Berlin, Germany, the infant mortality among hand fed infants during the hot summer months is 21 times greater than among those fed from the breast, the maximum being reached in July, when the mortality of the artificially fed children reached 25 times more than among those fed from the mother's breast. In France, of 12,000 deaths among infants under one year of age, 5,660 died in the months of July and August. In Australia the authorities have been gravely concerned about this awful infant mortality.

In Brisbane, says Dr. Turner, during the summer months more than one-half of the bottle fed babies die. In referring to this matter, Musket of Sydney made the statement that of 303,070 infants dying in New Zealand and Australia in 19 years, one-half might have been saved.

Dr. Newholme, M. O. H., said in an article in the *Lancet* that breast fed children contribute but one-tenth of the

diarrheal infant mortality. Dr. Tyson states that 75 per cent. of the 150,000 infants that die annually in Great Britain from all causes are bottle fed. Dr. McLean, Medical Officer of Health for Hampstead, says that infant mortality, broadly speaking, is a mortality of hand fed infants. Investigation in Munich revealed the fact that 83.3 per cent. of the infant mortality was of breast fed infants.

In Germany, 41.37 per cent. of the entire infant mortality for the year occurred in the months of July and August; but on the other hand, in Prague, where nearly every woman nurses her own babe, the hot summer months do not seem to show any increase in the infant mortality.

To quote statistics from Berlin again, where the health authorities have taken a great deal of trouble in investigating such matters, they discovered that out of 43,423 infant deaths of less than one year of age, in which the mode of feeding could be ascertained, only 3,995 were breast fed children, whereas the remainder, 39,428 were bottle fed. The experience of other cities has been quite similar, so that it is quite obvious that cholera infantum is but another name for milk poisoning.

Illustrations of this character could be multiplied almost indefinitely, but there is unquestionably enough evidence herein contained to convince one of the role played by impure milk in our enormous infant mortality.

In addition to the influence and dangers of milk from diarrheal disease, we have also to contend with the great danger in infancy and early childhood from bovine tuberculosis. The statement made by the late Prof. Koch in 1901, which created such consternation amongst all laboratory and public health workers, though resented at the time was probably one of the most valuable statements that he had ever made, inasmuch as it stimulated investigation of such a character as might not have otherwise been made.

That tuberculosis of the bovine type is a frequent occurrence in early childhood has been well demonstrated by investigations made by various laboratory workers, among whom, on the Continent of America at least, probably the most valuable work has been done by Dr. Theobold Smith and Dr. Wm. H. Park. The reports published in the Research Laboratories of the New York Health Department of the work done by Dr. Wm. H. Park, Director of the Laboratories, are well worthy of the perusal of those interested in the influence of bovine tuberculosis on infant mortality.

The cases of human tuberculosis examined by Dr. Park and his associates are especially valuable, inasmuch as they were not selected like those of some of the other investigators. The following are some of the figures taken from the reports of Dr. Park and his associates:

The total number of tuberculous persons examined in the Research Laboratories of New York City, relative to type of tubercle bacilli was 438, and of these, 32 or 7⅓% showed tubercle bacilli of the bovine type. The 438 persons were divided into three groups, according to age:

(1) 297 persons, 16 years of age or older, among whom only 1 or less than ⅓ of 1% showed bovine tubercle bacilli.

(2) 54 persons between 5-16 years, among whom 9 or 16⅔% showed bovine tubercle bacilli.

(3) 84 children less than 5 years, among whom 22 or 26⅓% showed bovine tubercle bacilli.

The foregoing cases, with the addition of the total number of those examined by other investigators, which Dr. Park accepted as reliable, with a careful analysis, is 1038, and of this number 101 or $9^{7}/_{10}\%$ showed tubercle bacilli of the bovine type. If the 1038 cases are divided into three groups according to age, we have the following:

686 persons 16 years of age or older, among whom 9, or $1\frac{1}{6}\%$ showed bovine tuberculosis.

132 persons between 5-16 years, among whom 33 or 25% showed bovine tuberculosis.

220 children less than 5 years old, among whom 59 or $26\frac{4}{5}\%$ showed bovine tuberculosis.

Before discussing these significant figures as all the cases of tuberculosis on which they are based did not have a fatal termination, it might be well to add the following results obtained from a study of 50 cases of fatal tuberculosis of children under 5 years old:

Among these cases, 9 or 15% were due to bovine tubercle bacilli.

These 50 cases included 9 children who died in the New York Foundling Hospital, and these 9 children, of whom 5 or $55\frac{1}{2}\%$ showed bovine tubercle bacili, constituted a distinct group, which was fed exclusively on cow's milk.

Dr. Park made the following significant statement which is contained in a recent annual report of the United States National Association for the Study and Prevention of Tuberculosis. "When the diagnoses of cases entering the Mount Sinai Hospital and the Babies Hospital of New York were examined, it was found that the majority of cases of meningitis supposedly due to the meningococcus were really tubercular in character. Fifteen per cent. of the cases of broncho-pneumonia and marasmus were also found to be cases of tuberculosis."

Startling as is the appalling sacrifice of infant life from the aforesaid causes, of scarcely less importance is the danger of milk as a medium for the spreading of other communicable disease, as typhoid fever, diphtheria, scarlet fever, etc.

It is estimated that approximately 20 per cent. of these epidemics or outbreaks can be traced to contaminated milk. While milk has been demonstrated to be the cause of a very large portion of our infant mortality, we must, in considering the influence of milk, have due regard for the tens of thousands who, though they have survived the contest, have been more or less handicapped all through life, having spent the energies battling with the effects of dirty milk that they should have spent in the building up of good physical and mental conditions.

The problem then arises as to the effective solution or control of this lamentable source of danger. In this campaign for pure milk, a milk that constitutes a safe food for infant use, we acknowledge with gratitude the pioneer work of those who are responsible for "certified milk." The various Milk Commissions in the United States and Canada have succeeded in securing a high standard of milk, with a low bacterial count, which is known as certified milk. The term certified milk is so well-known that is requires little reference in this connection. This milk must be produced from carefully selected, perfectly healthy, normal cows, tuberculin tested, housed in comfortable, sanitary stables, nourished by selected food and pure water, milked by clean, conscientious, healthy per-

sons, into clean and sterile containers, quickly cooled to a temperature of not more than 45 degrees, transported under conditions of refrigeration, and held at the above temperature until it reaches the consumer. Just before milking, the cow's udder is carefully washed, dried with sterile cheese-cloth; the hair on the udder and flanks is kept short in order to eliminate the possibilities of contamination as far as possible. The pail into which the cow is milked should have an opening not exceeding 7 inches in diameter. The milker's hands are carefully washed with soap and water, and he dons a clean linen suit, kept for the purpose, before milking. The hands must be kept dry during the entire process of milking.

This, of course, is the ideal manner in which to produce and handle. However, while this milk is as near sanitary as is possible for human hands to produce, yet we still have the danger element of the chronic carrier who may possibly be handling even this milk. Furthermore, notwithstanding the efforts that have been put forth by Milk Commissions for between 15 and 20 years in an effort to secure certified milk for infants, yet the certified milk supply of the Continent of America today does not constitute one per cent. of the entire consumption.

It is, therefore, imperative that some measures be adopted for the safeguarding of the other 99 per cent., and in view of this fact, the consensus of opinion is that in order that the entire public may be protected, and this source of infant mortality controlled, all milk that is not of the standard of certified milk must be scientifically pasteurized before being used for food for infants; and yet there is probably no other term in connection with the campaign for pure milk that requires as careful explanation as pasteurization. Much of the objection raised to pasteurization is due to the confusion of the terms "Pasteurizing" and "Sterilizing." Sterilized milk is boiled milk. Pasteurizing has in the past had a temperature of from 165° to 185° Fahrenheit for from 20 to 30 minutes.

In well organized Departments of Health, a systematic effort has been put forth to control the milk supply, nothing but scientific pasteurization of milk is tolerated. This consists of raising the milk to a temperature of 140 to 145 degrees Fahrenheit, and holding it at that for thirty minutes. This will destroy the tubercle bacilli, typhoid bacilli, diphtheria bacilli, and in fact all disease-producing germs, yet it does not appreciably affect either the nutritive value or the digestibility of the milk; the taste is not altered, nor does it interfere with the formation of the cream line. Immediately after pasteurization the temperature of the milk must be lowered to 45 degrees Fahrenheit, and kept at that until delivered to the consumer in sealed package. Pasteurized milk must be treated with the same care and precautions as certified milk.

In Toronto all milk is subjected to rigid inspection at both farm and dairy, all milk showing evidence of barnyard contamination after being tested with the dirt tester is condemned as unfit for human consumption either raw or pasteurized. Pasteurization does not justify the slightest relaxation in the demands of a Department of Health for clean milk, but clean milk may be far from bacteriologically clean.

The milk after reaching the home should be kept at as low a temperature as possible, and always kept covered, never exposed to dirt or fly contamination.

The care of the milk and the care and precaution to be exercised in the feeding of

the baby is a matter of education. It has taken years to educate the medical profession and the public to the fact that all disease is due to the presence of germs that have gained access to our bodies either by inhaling into our lungs or taken into the stomach in food or drink. However, since this fact has been established, every precaution has been taken by both physicians and surgeons by means of rigid cleanliness and antiseptics in all surgical procedures, and by the careful isolation of patients, and disinfecting of all excreta, etc., in medical cases.

But it is only within the past few years, that attention has been drawn to milk as one of the most fruitful sources of infection; yet one can readily understand how difficult it is for those not familar with the germ origin of disease to comprehend the dangers of the conveying or infection in this way.

Inasmuch as, unfortunately, the cow is destined to be the foster-mother of a very large percentage of our infants we must rigidly enforce such sanitary rules and regulations as may be found necessary for the securing of an absolutely clean milk and then make it bacteriologically clean by scientific pasteurization.

There are a few fossils yet who are opposed to pasteurization, their contentions are inconceivable to any one who has made a careful study of the dangers of raw market milk, even if we were to grant for argumentative purposes, that the nutritive value or digestibility of the milk was slightly altered by this treatment it would be infinitesimal as compared with the dangers of pasteurized milk. The child welfare organization of a Department of Health should embrace the pre-natal care of the infant and of the expectant mother as this affords the best opportunity to educate the mother as to the importance of nursing her offspring and to see that the social conditions are such as to make it possible for her to do so.

France has provided nursing rooms in factories and other places where nursing mothers work, where their infants may be brought during the day to be nursed and charitable organizations have established restaurants where nursing mothers can get a substantial meal without any questions being asked. They have realized that the best way to modify cows' milk in an ideal manner for the baby is to feed it to the mother.

PNEUMONIA IN INFANCY.

BY

ROWLAND GODFREY FREEMAN, M. D.,
New York City.

Adjunct Professor of Pediatrics, University and Bellevue Hospital Medical School, New York; Attending Physician to the Children's Ward, Roosevelt Hospital; Attending Physician to the Foundling Hospital; Attending Physician to the New York Nursery and Child's Hospital; Attending Physician to the Seaside Hospital of St. John's Guild; Consulting Physician to Somerset Hospital; Consulting Physician to St. Agnes Hospital Crippled and Atypical Children.

Infectious diseases are for the most part a reaction of cells to new cell environment caused by an invading organism. The lungs have an enormous blood supply and furnish a varying reaction depending on their anatomical structure and vulnerability to invasion, on the physical condition of the victim, on the environment of the individual, and on the virulence and nature of the microorganism.

The lung responds to the invasion by a change in the blood content, by varying forms of exudate, and in children by the multiplication of epithelial cells rather than by a great amount of vascular exudate. In adults the biological response depends upon the invading organism, the pneumococcus by lobar pneumonia with a fibrinous or cellular exudate, the staphylococcus or streptococcus by localized inflammation with usually more circumscribed patches or areas of consolidation.

In infants these distinctions are not so sharp hence there is rarely a lobar consolidation, and lobular consolidations may be due to the pneumococcus or other exciting factors, and on this account attempts to base a description of lesions in children on adult lung pathology is liable to lead to confusion.

The pneumonia of infancy depends mostly on the activity of germs which are often normal inhabitants of the upper air passages. They develop evidence of virulence under favorable conditions of irritation of the air passages, or a chill, or privation, or fatigue, or bad air, or unhygienic surroundings, or measles, or whooping-cough, or influenza, which weakens the body, and disturbs the protective mechanism of the bronchial tubes and of the body at large, and fosters their growth and favors their incursions.

Mery and Boulloche inoculated animals with saliva of healthy infants and 15 times in 100 found it virulent, while in infants with measles it contained virulent pneumococci in 29 cases in 100, and virulent streptococci 23 times in 100. Broncho-pneumonia while at times arising through the conveyance of the infective agent from external sources is often an auto-infection.

Many studies have been made of the bacteria associated with broncho-pneumonia, all of them indicating that one or more of the three organisms frequently found in the mouths and throats of healthy persons are the predominating organisms. They are the pneumococcus, the streptococcus and the staphylococcus aureus. Organisms less frequently found are the influenza bacillus, staphylococcus albus, Friedlander's bacillus, colon bacillus, Pfieffer bacillus, bacillus pyogenes, and typhoid bacillus.

Thus Netter in forty-two investigations on broncho-pneumonia found 24 cases with a single organism, the pneumococcus in 10 cases; the streptococcus in 8; and the staphylococcus in 5; the Friedlander in 2, while in 17 cases there were more than one organism present. Of these, 8 showed the pneumococcus; 10 the streptococcus; and 7 the staphylococcus.

In 100 observations by Martha Wollstein the pneumococcus was present 67 times; the streptococcus 37; and the staphylococcus 29 times.

Dunn[1] of Boston has studied bacteriologically by means of cover glass preparations 53 cases of broncho-pneumonia in children to ascertain the probable organism bearing an etiological relationship to the disease and assumed the predominating organism of those found to be in that relationship. Twenty-nine of the cases showed a mixed infection. These occurred in infants, were said to have a gradual onset, did affect the mental condition, gave a moderate temperature, were of moderate duration, and terminated by lysis or death, and gave diffuse signs in the chest.

Twelve of the cases, shown to be tuberculous, were in infants, were of gradual

[1]Dunn. *Boston Med. and Surg. Jour.*, May 7, 1908, p. 631.

onset, did not affect the mental condition, gave a moderate temperature, ran a long course, and resulted in death, and gave localized signs in the chest.

Five pneumococcus cases in infants gave a sudden onset, affected the mental condition, had a high temperature of short duration, ended in crisis, and had localized signs, indeed followed the type of pneumococcus lobar pneumonia.

Seven cases showed the influenza bacillus and only 28% of these occurred in the first two years. They were characterized by gradual onset, clear mental condition, a moderate temperature, long course, terminating by lysis, and shifting signs in the chest.

If the work of Dunn should be corroborated by other observers with more complete methods our classification of pneumonia of infancy might wisely be made as follows:

1. Pneumococcal pneumonia, usually primary, of sudden onset, persistent high temperature, short duration ending by crisis, and with a good prognosis. It may be lobar or lobular.

2. Mixed infections, less sudden onset, irregular temperature, longer course, ending by lysis or death. Influenza like the above but rare in infancy.

3. Tuberculous like above but terminating usually fatally.

The bacteriemia of lobar pneumonia in adults has received considerable attention, in 1900 Preckaska[1] found pneumococci in all of 50 cases investigated, but no later observer, so far as I know, has found it so universally present, thus Pasler[2] found it in 8 of 50 cases; Frankel[3] in 34 of 170; Cole[4] in 9 of 30; Kinsey[5] in 22 of 59; Weins[6] in 26 of 33; Rosenow[7] in 132 of 145 of the cases investigated. Only one report of a similar investigation in children has come to my notice. Otten[8] found pneumococci in the blood of 9 of 70 children examined. Five of the 9 died.

This tabulation is probably unreliable and most of the early and many of the late determinations are made with inadequate technique.

It is an interesting observation that these cases in adults in which the pneumococcus is found in the blood were no more severe than those which gave a negative result. So that the finding of the pneumococcus in the blood has apparently no more prognostic value than finding it in the sputum.

There is little new in the pathology of pneumonia in infancy. Why one lobe should be more susceptible to invasions than others has not been explained, but it is the almost universal opinion that the order of frequency of invasion of the lobes is first, left lower; second, right upper; and third, right lower. Knowing the anatomical difference between the lungs of infants and those of adults, the much larger proportion of bronchi and connective tissue, the much smaller development of the air vesicles, we have ample reason for the development of a bronchial or lobular rather than a lobar type of pneumonia.

There is a beginning bronchitis followed by a peribronchial exudate and a final coalescing of these peribronchial areas of consolidation so that one may see at autopsy a case of broncho-pneumonia that morphologically resembles lobar pneumonia. Strangely enough in the broncho-

[1]Preckaska. *Zeit, f. In. Med.* 1900, No. 46.
[2]Pasler. *Munch. med. Wochenschr.* 1901, Nos. 8 and 9.
[3]Frankel. *Internat. Beitung. z. In. Med.* Berlin, 1902, II 103, 114.
[4]Cole. *Bull. Johns Hopkins Hosp.* June, 1902.
[5]Kinsey, J. *Am. Med. Ass'n.* 1904, No. 12.
[6]Weins. *Zeit. f. klin. Med.* 1908, p. 53.
[7]Rosenau. *J. Infect. Dis.* 1904, p. 280.
[8]Otten. *Jr. f. Kindl.* LXIX, pp. 529-624.

pneumonias of infancy we may have little general bronchitis with correspondingly less dyspnea and acceleration of respiration. If the inflammation is intense there is usually some pleurisy developed which may remain dry but is very liable to coat the pleura with a thick exudate accompanied by pus. The more severe types may result in gangrene of areas of the lung or the formation of abscesses in the tissue of the lung.

The contributing factors in the etiology of pneumonia are interesting, for on this subject I think we have recently learned much and are still acquiring useful knowledge.

Well cared for infants rarely have pneumonia, in fact there is only one disease that is common in well cared for infants and that is influenza or common cold, and in this disease should a complication arise it is much more apt to be otitis than pneumonia. The children then, that have pneumonia are the children that are already made susceptible either by bad environment and defective care, or when weakened by some preceding acute disease.

The occurrence of pneumonia in infancy is good evidence of this fact. There is little of it in summer when everybody is outdoors. It begins to be prevalent as soon as the houses are heated and the windows are closed, and increases in frequency until the windows are open because the temperature outdoors is the temperature our people consider pleasant. The more well-to-do people who have large rooms, and to whom the cost of heating is negligible, are less apt in closing their windows to make the child susceptible to pneumonia, but in the tenements where a temperature of 70° F. is as much desired as in the houses of the rich, where coal is a costly luxury, necessary economy seems to them to require the exclusion of all the fresh air possible. It is partly on this account that in these tenements the morbidity rate of pneumonia in infancy is higher in winter, just as the morbidity rate of diarrhea is higher in summer. The wealthy, however, are not immune for many of them will insist on close rooms and on keeping the babies bathed in their own sweat for fear of draughts and catching cold. The absence of draughts, not draughts, invites pneumonia in babies, and clothing that is wet conducts and does not insulate.

That the doctrine of fresh air finds little support in some quarters is shown by the following quotation from the recent work of Still. "The doctrine of open air," says Still, "excellent when checked by common sense and experience, has taken such hold that one finds the tenderest babies lying ill with broncho-pneumonia in a room with the windows wide open and the thermometer at 55° or even lower."

It is a fair assumption that a large proportion of cases of broncho-pneumonia in infancy complicate influenza or colds, an affection that spreads throughout most households when one member acquires it, and then throughout cities. It is perhaps the most readily communicable of all conditions because the people who have it constantly distribute about them the active organism associated with the disease by coughing, sneezing and talking, while with most contagious diseases the person having it is isolated on account of its severity. It is on this account that so many infants acquire this disease from other members of the household and thus add to the number of cases of pneumonia.

Broncho-pneumonia is most frequent during the second half of the first year and

the second year. Rare after the fifth year. It is most frequent during the period of first dentition. It is somewhat more frequent in boys than in girls.

The presentation of the subject of pneumonia in infancy in our text-books, is from the point of view of the teacher of pediatrics, most unsatisfactory. When the student should have a clear cut simple clinical picture to help him to make a diagnosis of a disease often obscure, he finds many pages describing several types as different diseases. On this account some teachers of pediatrics have found it advantageous to teach the pneumonia of infancy as one disease, laying little stress on the differentiation between lobar and broncho-pneumonia.

We are told with conventional teaching that there are two kinds of pneumonia in infancy and childhood; a lobar pneumonia resembling that of adults, with a sudden onset, persistent high temperature, a short course and a termination by crisis, that such a pneumonia is primary, is croupous, is caused by the pneumococcus, that it involves a part or the whole of one or more lobes, that the prognosis in these cases is good, and that it is uncommon during the first two years of life. On the other hand we are told of another pneumonia that is more apt to be secondary, whose onset is more gradual, whose temperature has marked remissions, which runs a longer and indefinite course ending by lysis, and is associated with the presence of one or more of several organisms one of which may be the pneumococcus. That this is due to a peribronchial inflammation which involves a part of one or more lobes. The prognosis is much more grave and this is the common pneumonia of infancy.

Now all this is undoubtedly true in a general way but is it not more or less misleading for students who are trying to learn to make a diagnosis of pneumonia at this most difficult period, the first two years of life? We have, of course, cases that follow the lobar type and others that follow the lobular type. We have rarely a pneumonia of insidious onset except the hypostatic pneumonias of marasmic infants, and although there is a difference in prognosis in these two types in infants it is in part a difference between a primary pneumonia in a previously healthy child and a complicating pneumonia in a child already weakened by a previous disease. So that for medical students, at any rate, the pneumonia of infancy may much better be presented as one disease with a sudden onset, sometimes with persistent high temperature, sometimes with remissions, and a prognosis in such pneumonia, if primary and in a previously healthy child, should be good, while if secondary it should be guarded.

The growing evidence that pneumonia may be primarily a bacteriemia and only one local manifestation of a condition which may involve many different organs, the middle ear or mastoid cells, the endocardium, the meninges, the peritoneum or the lungs, may cause a recasting of our ideas on the pneumonias of infancy.

In infancy the onset is usually sudden whether the pneumonia be primary or complicating, an exception being made only in the form of hypostatic pneumonia which occurs as a terminal infection. With the sudden onset there is marked apathy, the children are dopy, uninterested in their surroundings and will usually doze if undisturbed. The respirations become rapid,

usually remaining in the neighborhood of fifty a minute and with this rapidity of respiration the type of respiration changes, so that the pause in the respiratory cycle which normally occurs at the end of expiration occurs at the end of inspiration. They inspire, then hold the breath because expiration hurts them and with expiration usually grunt or groan. The pulse is increased in rapidity and the ratio between pulse and respiration changes from 4 to 1 to about 3 to 1. The temperature rises rapidly and may remain persistently high or fluctuate. A persistently high temperature may cause a suspicion of pneumococcus infection, while a temperature with marked exacerbation and remission is suggestive of a pyogenic or other infection.

If the child has a persistently high temperature a more prompt resolution by crisis may be expected, while if there is a lower temperature with marked remissions, a longer course may be expected.

The children usually cough but do not necessarily cough a great deal.

If one is fortunate enough to first see one of these children asleep, the diagnosis of pneumonia is often indicated by the appearance of the child. The red cheeks, the flaring nostrils, the rapid respirations, the pneumonic type of respiration with the pause after inspiration, the expiratory grunt, make a typical picture of the disease. A confirmatory sign of much value when present is a condition of rigidity of the neck and upper extremities without rigidity of the lower extremities, this rigidity being due to an effort on the part of the child to protect a sore chest. With all these signs and symptoms present a positive diagnosis of pneumonia in infancy may be made.

Physical examination may or may not confirm the diagnosis. Localized crepitant rales at the end of inspiration are commonly found, and the signs elicited by auscultation are much more common than those elicited by percussion.

The treatment of pneumonia may be divided into general care of the child, and attempts at specific treatment.

The successful care of pneumonia in infancy is best accomplished by avoiding all the things that are generally used and giving the child what it very likely might have if it were entirely neglected. Cough mixtures, expectorants, poultices, steaming, all of these simply put impediments in the way of recovery.

The child should be put into a large, quiet room, with a southern exposure, and the windows of the room should be kept open. The food should be diluted and easily digested and the proper food for each particular case must be ascertained by observing what the child can digest. We must remember that the child has a very prostrating disease from which babies lose weight rapidly and a sustaining diet should be given if the baby can digest it. The best sustaining diet for an infant is milk. This may be given with cereal gruels and clear soups. The food should be given at regular intervals.

The fever may be neglected and considered simply as a part of the protective resistance against this infection, unless the child becomes very nervous and does not rest well. For these symptoms warm baths and fresh air are the best treatment.

For medicinal treatment laxatives are often the only medicine needed. The bowels must be kept open and the distention of the abdomen which often occurs in

these cases must be combated by fomentations and laxatives, sometimes by colon irrigations.

Of stimulant drugs perhaps strychnine is the best. Alcohol should be administered with great caution. The work of Howland indicates that fresh air is a more powerful and enduring heart stimulant than any drug, especially when that air is cold.

The use of mustard pastes to the chest is valuable to allay pain and procure rest, especially during the early stages when the expiratory groan is very pronounced. That it has any other effect than to make the patient more comfortable I doubt. It, however, is of value when used as indicated.

In attempting to find some specific treatment for the cure of this disease modern resources have been adopted. So-called vaccines which consist of the hypodermic introduction of dead bacteria from a pure culture of those supposed to be causing the illness, have been used to a moderate extent. Stoner[1] who has collected 155 cases treated by vaccine has reported a mortality of 12.9%. The so-called Romers serum, a pneumococcus serum has been considerably used in Germany with almost universally favorable reports. Thus Kriske[2] reports ten cases in children from nine months tc ten years in which he noted a distinct improvement after the administration of the serum and all cases recovered. May[3] reports good results in twenty cases with increased leucocytosis. Monti[4] used it in twelve cases with decided benefit, while Knauth[5], Linderstern[6], Tunher[7], Krische[8] and Crux[9] used it with favorable results.

Brunning[10] treated six cases with falling temperature, slowing of the pulse and general improvement after the administration of the serum.

A third method of treatment is by the injection of leucocyte extracts as advocated by Hiss and Zinsser. While some favorable reports have been made in certain cases its utility in all cases of pneumonia has not been demonstrated.

With vaccine treatment I have had no personal experience. I have, however, used a polyvalent pneumococcus serum[11] prepared by the New York Board of Health, in fifteen cases of pneumonia in infancy using fifteen other alternate cases as controls. These infants were injected with 100 c.c. a much larger dose than has been used, so far as I know, in infancy. Of the fifteen cases nine received also streptococcus serum.

Of this series four cases were apparently markedly improved by the serum. The children immediately appeared better after the injection, and the temperature rapidly reached normal, so that in these cases the serum apparently had a curative effect. In other cases it had no effect at all. Nor did a second injection ever seem to do any good.

[1]Stoner. "A Resumé of Vaccine Therapy." *Am. J. Med. Sci.* 1911, cxli, p. 186.

[2]Kriske "Zur Serumtherapie de Kruposen Pneumonie." *Medizinische Klin.*, 1908, iv. p. 1681.

[3]May. "Ueber die Wirkung des Romerschen Pneumokokken-serums bei der Kruposen Pneumonia mit besonderer Berucksichtingung der Leukocyten." *Munch. med. Woch.*. 1908. iv., p. 2140.

[4]Monti. *Arkiv. f. Kinderhk.* 1908, xl, 45.

[5]Knauth. *Deut. med. Woch.*, 1905, No. 12.

[6]Linderstern. *Munch. med. Woch.*, 1905, No. 39.

[7]Tunher. *Wein. med. Woch.*, 1906, No. 11.

[8]Krische. "Sur Serumtherapie der crouposen Pneumonie." *Med. Klin.* IV. 48, 1908.

[9]Crux. "Zwolf Falle von Lungenentzundung im Kindesalter mit Romer's Pneumokokkenserum behandelt." *Deutsche med. Woch.* XXXIV, 16, 1908.

[10]Brunning. "Kinderpneumonie und Pneumokokkenheilserum." *Deutsche med. Woch.* XXXV. 42. 1911.

[11]Freeman. "Serum Treatment of Pneumonia." *Amer. Jn. Diseases of Children*, Dec., 1912. Vol. 4. pp. 391-409.

There was usually a reduction in the leucocytosis and some reduction in the polynuclear leucocytes. The duration of the disease in the injected cases was shorter than in the controls and the mortality was slightly less. No bad effects were noted as a result of the use of serum.

From these experiments it would appear that the serum used was a specific for certain cases of pneumonia but did not fit other cases. Possibly the elaboration later of a polyvalent serum containing other strains of pneumococcus serum may furnish us with an efficient treatment for the cure of pneumonia of infancy.

The general treatment of pneumonia in infancy may be summarized as: a quiet environment, out of doors if possible or in an open window, constant care to keep the bowels open, and adaptation of the food to the child's capacity of digestion, bearing in mind the calories needed for a child of its size and condition.

211 West 57th Street.

THE VACCINE TREATMENT OF WHOOPING COUGH.

BY

E. MATHER SILL, M. D.,
New York City.
Attending Physician in Diseases of Children at the Good Samaritan Dispensary; Lecturer in Diseases of Children at the New York Polyclinic Hospital and Medical School.

Since writing my paper on the vaccine treatment of whooping cough which appeared in the *American Journal of Diseases of Children* for May, 1913, in which I have described in detail the pertussis bacillus as found by Spengler[1] in 1897, and afterwards in 1905, described by Bordet,[2] and more recently found and described by Mallory and Horner[3] I have continued my work with the vaccine therapy of whooping cough.

In my first paper I gave a synopsis of thirty-three cases of whooping cough treated entirely with pertussis vaccine, since then I have added thirteen more cases to my list of cures. Besides these cases, three children (who had not had whooping cough) in the families where other members were having the disease and being treated for it, were given prophylactic doses of the vaccine. These children being constantly exposed were watched over a period of two months and did not develop the disease: two children in one family, one of 5 years who received four injections of 20 million each of pertussis vaccine over a period of one month; one of three years who got nine injections of 20 million each over a period of one month, and a third child of 7 years in another family who received three injections of 25, 50 and 75 million respectively of the combined pertussis vaccine, which consists of organisms most commonly found in the secretion from whooping cough, namely

Bacillus pertussis	50	Million	To the C. C.
Staphylococcus aureus	20	"	
Micrococcus catarrhalis	20	"	
Staphylococcus aureus	20	"	

The original pertussis vaccine, contained the bacillus pertussis alone and this was given to thirty-six of my cases, while the remaining ten cases (forty-six in all, not including the children that were given the vaccine for prophylaxis) received the combined pertussis vaccine.

The average length of time it has taken to cure whooping cough with the best drug

[1]Spengler: *Deutsch. med. Wochschr.*, 1897, xxiii, 830.

[2]Bordet: *Brit. Med. Jour.*, 1909, ii, 1062.

[3]Mallory & Horner: *Jour. Med. Research*, 1912, xxvii, No. 2, p. 115.

treatment at our command has been from seven to twelve weeks, the average length of time in my first series of thirty-three cases treated with pertussis vaccine alone was four and one-half weeks, and in this series I now believe that the course of

The cases that were seen early in the attack, before the paroxysms had attained their height, seemed to respond more quickly to treatment and their course was shortened. In all cases, however, after one to three injections, the number and

SYNOPSIS OF CASES TREATED WITH PERTUSSIS VACCINE.

Case No.	Age	Month of Year Sick	Duration Before Vaccine	COUGH		VOMITING		VACCINE		Doses Interval	Vomiting Ceased	Duration Disease After Vac.
				Day	Night	Day	Night	No.	Size			
1	4wks.	June	1wk.5days	24	23	Yes	Yes	10	20Mil.	3days	4days	4wks.1day
2	3yrs.	"	4 "	20	20	"	"	7	" "	4 "	8 "	4 " 3 "
3	7mo.	"	5 " 3 "	30	30	"	"	10	" "	4 "	25 "	5 " 1 "
4	8 "	"	3 "	10	7	No	No	7	" "	3 "		5 "
5	5yrs.	"		20	12	"	"	4	" "	4 "		5 " 4 "
6	3 "	"	3 "	8	4	"	"	5	" "	5 "		5 " 1 "
7	4 "	Mch.Apr.May	3 " 3 "	6	10	"	"	8	" "	7 "		9 " 1 "
8	4 "	Sept. Oct.	2 " 3 "	12	12	Yes	Yes	6	40 "	3 "	18 "	4 " 1 "
9	1 "	Aug.Sept.Oct.	3 "	8	5	"	"	12	20 "	7 "	42 "	7 " 3 "
10	3 "	Sept. Oct.	2 "	8	16	"	"	6	40 "	4 "	26 "	3 " 3 "
11	2 "	Aug. Sept.	1 "	8	12	No	No	6	20 "	7 "		5 " 4 "
12	14mo.	Sept.Oct.		12	16	Yes	Yes	7	40 "	3 "	20 "	3 " 2 "
13	30"	" "	2 "	9	12	No	No	10	30 "	3 "		6 " 3 "
14	8 "	" "	2 "	12	9	Yes	Yes	8	40 "	3 "	9 "	4 " 1 "
15	6yrs.	Mch. Apr.		2	10	"	"	4	20 "	7 "	35 "	5 " 4 "
16	30mo.	Feb.	7 "	6	4	"	"	5	40 "	1 "	5 "	7 "
17	20"	Mch.		12	6	"	"	3	20 "	3 "	2 "	8 "
18	9 "	Apr. May		20	12	"	"	4	20 "	4 "	17 "	5 " 3 "
19	24mo.	" "		6	6	No	No	4	20 "	6 "		3 " 4 "
20	7 "	May,June		12	3	Yes	Yes	3	20 "	3 "	4 "	2 " 1 "
21	2 "	Mch.	5 "	3	2	"	"	9	20 "	3 "		3 " 3 "
22	30"	"	5 "	4	3	"	"	6	40 "	3 "	7 "	3 " 1 "
23	4yrs.	"	4 "	24	24	"	"	8	40 "	3 "	15 "	3 " 1 "
24	3 "	Jan.Feb.	5 "	12	24	"	"	10	20 "	3 "	12 "	4 " 4 "
25	2 "	" "	4 "	24	4	"	"	7	40 "	3 "	14 "	2 " 3 "
26	4 "	Apr.May	4 "	12	4	"	"	6	40 "	3 "	18 "	3 "
27	6 "	Jan.	2 "	6	2	"	"	4	40 "	2 "	7 "	1 " 3 "
28	3 "	Jan.Feb.	5 "	8	5	"	"	11	40 "	2 "	16 "	3 " 6 "
29	2 "	May,June,July	2 "	8	6	"	"	6	20 "	6 "	28 "	6 " 5 "
30	1 "	May,June	2 "	6	4	"	"	6	40 "	2 "	9 "	2 "
31	1 "	July	6 "	20	24	"	"	6	40 "	3 "	10 "	4 "
32	3 "	May,June	5 "	6	12	"	"	9	40 "	2 "	2 "	4 "
33	3 "	Jan.Feb.	5 "	12	24	"	"	7	40 "	3 "	14 "	4 " 4 "
34	5mo.	Feb.Mch.	1 " 12con.	30	30	No	No	10	50 "	2&3 "		3 " 3 "
35	3½yrs	Mch.Apr.	1mo.	24	24	Yes	Yes	10	50 "	2&3 "	31 "	4 " 3 "
36	5yrs	" "	1 "	24	24	No	No	8	50 "	2 "		2 " 6 "
37	3 "	" "	1wk.	26	26	Yes	Yes	8	50 "	2&3 "	13 "	3 " 6 "
38	7mo.	" "	2wks.	10	10	"	"	7½	50 "	4 "	10 "	3 " 3 "
39	4¼yrs.	" "	4 "	28	28	"	"	6½	50 "	2&3 "	10 "	3 " 3 "
40	16mo.	" "	1mo.	14	14	"	"	8	50&25	2&3 "	6 "	3 " 2 "
41	4¼yrs.	Apr.May	1wk.	24	10	No	No	5	50 "	3 "		2 " 1 "
42	3½ "	" "	2wks.	24	14	Yes	Yes	7	50 "	2&3 "	35 "	2 " 5 "
				(After 1st doses child stopped treatment 3 weeks.)								
43	1¾ "	Mch.Apr.	1mo. 1wk.	24	24	"	"	9½	50 "	2&3 "	15 "	3 "
44	3 "	May		4	4	No	No	4	40 "	2 "		1 "
45	8 "	"	2wks.	5	5	"	"	1	40 "			3 "
46	5 "	"	2 "	6	6	"	"	2	20 "	7 "		5 "

many of the cases treated could have been shortened had larger doses of the vaccine been given at more frequent intervals. The dose of the vaccine varied according to the number and severity of the paroxysms from 20 million bacteria in the mild cases to 60 million in the severe cases.

severity of the paroxysms were markedly lessened.

The younger children seemed to respond more quickly to the vaccine and the attacks were shorter. This I believe was due to the fact that they got comparatively larger doses for their ages than the older children.

This is well shown in the table in cases 30, 31, 32, 34, and 20.

My last series of ten cases (numbers 35 to 46) were treated with the combined vaccine and the average duration of the attack after vaccine treatment was begun was about three and one-half weeks as will be seen by the appended table, while in some of the cases the duration was shorter. It will be seen again in this last series of cases that those children that received the vaccine early in the attack made the most prompt recoveries.

The vaccine is given under antiseptic precautions, subcutaneously, with the ordinary glass syringe, the injection being given either in the abdomen or buttocks. There are no constitutional symptoms or even local reaction following the injection of the vaccine.

All the cases treated by means of the vaccine have been complete cures, with no very serious complications.

Those that have to deal with many young children know that whooping cough in a baby or young child is often a serious disease on account of its complications, especially pneumonia, which not infrequently terminates fatally. I find in the year 1908 in the registration area of the United States there were 4,989 deaths from whooping cough, or nearly as many as die from scarlet fever.

In closing I wish to say that I am fully convinced from my past experience that the vaccine treatment of whooping cough is by far the best treatment that we have at our command for the disease, and that not only does it alleviate symptoms and cure the disease quickly but also in a measure prevents those complications of the disease that are apt to be so fatal.

104 West 76th St.

Author's Note.—I am indebted to the department of experimental medicine of Parke, Davis & Co., for the supply of vaccine which I used.

CURING DIPHTHERIA CARRIERS WITH STAPHYLOCOCCI.

BY

CHAS. E. WOODRUFF, M. D.,
U. S. Army Med. Dept.

It has often been said that medicine owes much of its advancement to country practitioners like Jenner, who, by their very freedom from the distractions of academic and city life, are able to see things which escape a busy man's notice. It now seems that the last great advance must be credited to another of these keen rural observers, Dr. A. Schiötz of Roskilde, Denmark. His original article appeared in *"The Ugeshrift for Laeger,"* Dec., 1909. An abstract was published in the *Journal Am. Med. Assn.*, 1910, p. 422, L. V., but the article itself is so concise and scientific that I quote it in full as a modern classic.

"It is with great interest that I have read the lecture given by Dr. Madsen in Aarhus and published in *The Ugeshrift for Laeger*, No. 47, November 25, 1909. At the end he asks the following question: "How are we to deal with infection carriers?"

I am sorry that I was unable to be present when the lecture was given, and take part in the discussion, and beg to communicate the following observations about some cases of diphtheria which I treated at The Roskilde Amts-Sygehus.

It is a comparatively long time since we began to make bacteriological tests of the cases of diphtheria treated at this hospital, and since 1901 we have acted as testing station to the physicians of the city and the county, who are thus, as soon as possible, informed whether a test-specimen, a sterilized needle with a little cotton at the end, contains + B L (Bacterium Loefleri) or — B L.

While formerly patients used to be discharged, when the complaint in the throat was over and the throat looked natural, we now soon perceived that the bacilli would often remain virulent for a far longer time, and accordingly many patients had to stay at the hospital for a disproportionately long time, which would often cause great inconvenience to the patient and surprise and dissatisfaction to their parents and others. It would, besides, cause inconvenience to the hospital, when epidemics sprang up here and there, as it was impossible to procure the necessary accommodation.

It has been made a principle not to discharge anybody till — B L has been ascertained twice at a few days' interval, which, as a rule, means a culture of cocci.

Now experience had taught me two things: in the first place, that a patient with — B L suffering from a common quinsy, who had been sent to the hospital after a clinical diagnosis without microscopic examination, would never in the course of the malady get diphtheria at the hospital. In the second place, that in a patient suffering from diphtheria the complaint in the throat would often be aggravated, and that after repeated tests showing + B L, — B L would suddenly appear. Then it struck me in 1908 that in protracted convalescence i. e. in patients who were apparently cured of the disease, but could never get rid of the bacilli, the stay at the hospital might be brought to a conclusion by painting cocci on the mucous membrane of the throat. I made the experiment, and succeeded.

I shall briefly state the six cases I dealt with in this way, adding, as a matter of course, that I satisfied myself that the health of the patient was otherwise good, and that I did not paint direct from a quinsy throat to a diphtheria throat, but only took, for this use, colonies from a culture of staphylococci.

I. Farm servant, 19 years; sent to the hospital April 4, 1908 with diphtheria, not very severe. Thirteen test specimens were taken from the throat, all of them showing + B L. A surgical patient—accordingly in another ward —was, in the first days of July, attacked by a quinsy, which on examination proved to arise from staphylococci. From the test tube the cocci were by means of a sterile testing-needle transferred to the above mentioned patient, July 6, and two test-specimens from the throat showed —B L. The patient was discharged July 11, after a stay of 99 days.

II. Mrs. F. 55 years, entered May 19th, with + B L. Six test specimens showed + B L. A culture of staphylococci was painted on the throat July 7, a quinsy arose, showing — B L twice. Discharged July 12—55 days.

III. C. F. Chr. 13 years; entered June 13, with + B L. 3 specimens + B L. July 27, cocci painted on the throat, twice — B L. Discharged August 2nd—51 days.

In 1909 similar paintings were undertaken for curative purpose, though not as the previous year to shorten the duration of convalescence, but merely to make sure that no patient should leave the hospital as an infection carrier.

IV. Mrs. N. 71 years; entered March 3, with + B L. The second specimen (March 16) showed — B L, but as she was landlady of a hotel and had to return home, because her husband was dying, I painted cocci on her throat before she was discharged—15 days.

V. Child, 11 years, entered May 26. Three specimens + B L. June 22 cocci painted on the throat; two specimens — B L—34 days. In this case the painting was done especially because the parents were unreasonably impatient.

VI. Child, 12 years, entered June 9. One specimen + B L. June 22 painted; two specimens — B L. Discharged June 28. In this case the painting was undertaken with a view to a journey, and because the father lived at a children's home where the boy could not be suffered to import diphtheria.

Thus the "experiment" proved successful in each case, and I intend to repeat it in such cases in which it may be required, in order to prevent diphtheria patients, discharged from the hospital which I am in charge of, from walking about as carriers of bacilli or secreters of bacilli.

Whether this is the right proceeding, whether it can suggest the proceeding which is to be common to the different parts of the country, I do not venture to decide.

On April 5, 1913, Schiötz wrote me that he has continued the treatment for protracted cases and with uniform success though occasionally he had to repeat the paintings as the first was not effective. The "quinsy" produced was always benign and there were no serious complications.

Major Henry Page of the medical corps, U. S. Army, must be given the credit of being the first to see the great importance of Schiötz's discovery. He applied it to a chronic carrier in whom antitoxin and all other remedies had failed. He sprayed bouillon cultures on the throat every two hours, and the bacilli disappeared in 48 hours. His articles (*Arch. Int. Med.*, 1911, VII, p. 16 and *N. Y. Med. Journal*, 1911, XCIV, p. 1282) directed attention to the matter in America, and others tried it successfully. Catlin, Day and Scott of Rockford, Ill., sprayed a 24 hour old broth culture thrice daily into the nose and throat of eight cases and the bacilli disappeared in 48 to 72 hours. (*Jour. Am. Med. Assn.*, 1911, LVII, p. 1452). G. Leary reported one case which gave negative findings 48 hours after spraying and a second case to which was given two sprayings at intervals of 2 or 3 days with a negative finding in 60 hours, but five days later one bacillus was found. (*Austral. Med. Jour.*, 1911, I, p. 233). Others who have tried the method with more or less success are Lydia DeWitt of St. Louis, (*Jour. Inf. Diseases*, 1912, X, p. 24). R. G. Wiener of New York (*Med. Record*,

1912, LXXXI, p. 593, Lt. G. B. Lake, U. S. Army, (*Med. Rec.*, 1912, LXXXI, p. 1128). Lorenz and Ravenel of Madison, Wis., (*J. A. M. A.*, 1912, LIX, p. 690) and Bell of Cincinnati (*Lancet Clinic*, 1912, CVIII, p. 234).

In Europe the matter has been curiously ignored though a prophet never has honor in his own country. The only one who has tested it out is Dr. J. D. Rolleston, assistant medical official of the Grove Fever Hospital in London. He permits me to quote from his article which is to appear in their next annual report. He was impressed by the "simplicity, efficacy and apparent harmlessness of the method" and tried it on eight advanced convalescents of whom three were adults. In two the nose alone was involved.

"A pure culture of staphylococcus pyogenes aureus having been obtained from the Central Laboratory a broth tube was inoculated with two or three loopfuls of the culture and incubated for 18 to 24 hours. The palate and fauces and in nasal cases the nostrils as well were sprayed three or four times a day. The spraying was followed by applying swabs dipped in the culture to the tonsils and surrounding parts.

In every case but one a mild form of sore throat was produced within 2 to 3 days of starting the treatment—an occurrence not reported in any of the cases hitherto published—and was accompanied by more or less constitutional disturbance. A striking feature was the considerable degree of malaise quite out of proportion to the temperature which as a rule was but slightly raised. The symptoms, however, when general and local were of short duration and were not followed by otitis or any other complication. The full issue of case 8 cannot fairly be attributed to the treatment.

As the process entails some degree of discomfort it is well not to employ it until other methods have been tried, and it is for this reason that I did not make use of it in a larger number of cases, but confined it to the treatment of chronic carriers in all of whom the bacilli had existed for more than 6 weeks. The earliest date on which the spray was used was the 46th day and the latest the 70th.

In any case it is advisable not to employ the method except at a late stage of convalescence for the following reasons. First, in the early stage before the mucous membrane has completely regenerated there is a danger of infection of the deeper tissues by the pyogenic organisms. So far no serious complications have resulted in man, but De Witt's experiments on rabbits and guinea-pigs show that the clinical symptoms of diphtheria are often more severe under staphylococcus treatment than otherwise. Secondly, the excess of mucus and detritus present in the throat during the acute stage prevents free access of the staphylococci to the parts and affords a temporary shelter to the diphtheria bacilli. Thirdly, in hospitals where patients owing to the possibility of complications, especially subsequent paralysis, are detained from 4 to 6 weeks. There is no need to use the method at an early stage when the chance of the bacilli being present is much greater than late in convalescence.

In this connection De Witt's investigations as to the persistence of Klebs-Loeffler bacilli in the throat of diphtheria patients are of interest. In 175 cases examined their duration was less than 30 days in 63 per cent., between 15 and 35 days in 87 per cent., under 15 days in only 12 per cent., and over 40 days in 12 per cent.

In view of the futility of most other methods in ridding the throat of diphtheria bacilli the application of staphylococcus cultures is worthy of trial. It is superior to the endotoxin treatment recently advocated by Hewlett and Nankivell (*Lancet*, 1911, ii., p. 143), in that the culture is easily prepared and that no injections are required."

"Eight chronic diphtheria bacillus carriers were treated by spraying and swabbing the throat and nose with a bouillon culture of staphylococcus pyogenes aureus. In 6 faucial cases the findings became negative within 2 to 7 days after starting the treatment. In the 2 nasal cases the treatment was ineffective. In about every case a mild form of sore throat was produced, but no complications ensued."

Case 8, to which he refers is as follows:

"Girl, aged 3 months. Admitted August 19th, 1912, with nasal diphtheria and congenital syphilis. 4,000 units given.

October 1st (44th day).—Nasal culture positive.

October 31st (74th day). Virulent diphtheria bacilli in nasal culture. Nostrils sprayed twice daily with staphylococcus culture.

November 1st.—Nasal discharge increased. Fauces clear. Morning temperature 101°, evening temperature 104°. Spraying omitted.

November 2nd.—Still much nasal discharge. Fauces clear. Temperature 100-102°. Culture positive, but much fewer bacilli present.

November 5th-9th.—Temperature normal.

November 8th.—Nasal discharge still profuse. More diphtheria bacilli in culture.

November 9th.—4,000 units of antitoxin given.

November 10th.—Erythema and edema of skin of abdomen at injection site. Temperature 102-99°.

November 17th.—Broncho-pneumonia.

November 19th.—Death.

Although the application of the spray was followed by a febrile reaction lasting for 4 days, the temperature became normal, and sub-

sequently remained so until after the re-injection. The terminal broncho-pneumonia to which the child was pre-disposed by its chronic rhinitis, developed nearly three weeks after the use of the spray, which cannot therefore be regarded as responsible for the fatal issue. It is more reasonable to incriminate the combination of congenital syphilis, diphtheria and anaphylaxis."

Probably the applications to the nasal cavities were not made as vigorously as by Schiötz and others who have been successful in such cases. Perhaps also an aggressive use of the culture might have prevented the death.

The only complications mentioned by others are those noted by Lorenz and Ravenel—coryza, very mild laryngitis and nasal furuncles in one case. It is understood that since the publication of Ravenel's article he has continued the treatment in many other cases with uniform success. It seems that we have at last a cure for chronic carriers who are largely if not entirely responsible for keeping up this disease. Apparently the method is less beneficial in the early period of convalescence than in the carriers of long duration.

The explanation of the remarkable results is not known. De Witt has shown that *in vitreo* there is no antagonism between staphylococcus pyogenes aureus and bacillus diphtheria, and thinks that the effect is due to the restoration of the normal flora of the mouth as originally suggested by Page. If so there is an antagonism which is not shown *in vitreo*. Our bacterial guests are not true parasites but are rendering return services, and this may be the reason for their presence. It is at least one more instance of the great discovery by Metschnikoff that benign bacteria may prevent the growth of malignant ones—particularly in the intestines where the bacillus bulgarius will drive out those responsible for intestinal intoxication.

It might be well to find out whether a dead vaccine of staphylococci or an emulsion of their crushed bodies or an extract of them, would not accomplish similar results either locally applied or internally. This would prevent all danger of even their mild complications and overcome the reluctance of some physicians to the use of living pus organisms.

THE VALUE OF EARLY DIAGNOSIS OF MENTAL DEFICIENCY.

BY

ISABELLE THOMPSON SMART, M. D.,
Medical Examiner of Mentally Defective Children to Department of Education, City of New York.

Ten years ago few specialists were giving any thought to the early diagnosis of mental defect. Then it was sufficient to recognize the marked cases as they came before one, and that there were latent possibilities of such defect being evident in the infant and in any child under seven years of age was little thought of. With other recent advances in medical science, there has come a very marked advance in the methods of diagnosing, as well as in the scientific treatment of mental deficiency. This condition has assumed huge proportions and mental deficiency *per se* has been becoming more and more a social question. Some of the factors which have helped to bring about the present status of this condition, and which have helped in a very large measure to place it in such a prominent place among thinking people, are (1) the influx of hordes of defective immigrants; (2) the presence of these im-

migrant children in our public schools; (3) their absolute failure to compete with other children; (4) their signal failure to acquire the English language as taught in what are known as the special classes, i. e. those in which the newly arrived immigrant of school age is placed in order to gain a working vocabulary of English before he may enter the regular grades. These are among the most potent causes for stirring the pedagogue and the physician to a better understanding of the needs of this class of children.

In a large cosmopolitan city, such as New York, which is *the* port of entry from the Occident, there is naturally a greater opportunity for the detailed study of such cases, and it is a fact that by far the greater number of mentally defective children are discovered by the class teacher, and are then referred to the proper channel for diagnosis as to the type of defect, and for treatment. But there are also a very large number of such children born in the United States every year, mostly of foreign parents, and here is where the value of early diagnosis comes in. It must be evident that the early diagnosis of mental deficiency is vastly important, but by no means is it easy to demonstrate, for the very reason that mentally defective or feeble-minded children, vary markedly in their degree of defect. Those who belong to the lowest type of feeble-minded are closely akin to the imbecile, while those who are only slightly afflicted are, on the other hand, only little different from the group of children said to be dull or backward. The most difficult case to diagnose is the border-line case, and with this type, it is only by the most careful watching and the most earnest efforts to remedy, in so far as possible, any and all existing physical defects, that a definite diagnosis can be made. But while this period of probation is going on the safest and sanest method of treatment is to give the suspect all the advantages that are provided for the case who has been positively diagnosed, i. e. a place in the special class, the advantage of the expert teacher, the opportunity to establish new muscular coordination by means of the special manual and physical training which the more unfortunate case is given; also the frequent rest periods and the additional nourishment. Then, if the child proves to be only on the border-line and can be reclaimed in this way, the reward is great, for surely there can be no greater work, next to the saving of human life, than the saving of human intellect from becoming doomed to the fog and mist of possible feeble-mindedness.

If these children can be diagnosed by the family physician as positive cases or as suspects, much valuable time could be saved for the child, by having it properly placed when entering upon its school career. All too frequently the boy or girl is tried out first in the kindergarten, then in the grades, term after term, year after year, whereas a careful study by the family physician, or by the specialist whose advice may be sought, and a recommendation that the child, upon entering school, be given the advantages of the special class, and if the case is really improvable, when the child is placed at once under the proper kind of scientific training, there is much hope for him, for, all things being equal, there will be only right habits and right coordinations established from the start and no time lost in unlearning bad or faulty habits. Even if the case is only slightly trainable, the best years will be

utilized at once and no time wasted, as is too often true at present.

The statement has been made, that not all physicians are alive to this serious problem, and thus are not keen in observing and diagnosing this condition. What then should he or she look out for in the young patient?

First, and of paramount importance, is the family history. Wherever there is a history of epilepsy, insanity or tuberculosis, the physician cannot be too vigilant in watching the developmental processes of the child. Alcoholism and syphilis frequently render the offspring deficient, both mentally and physically.

The knowledge of the physical condition of the parents at the time of conception is an aid in keeping the lime light on the suspect, while, of course, the mental and physical condition of the mother during her pregnancy is of much importance to the well-being of the child in utero. Certainly it cannot be disputed that any disease or ill health of the expectant mother during the development and growth of the fetus, which is nourished and entirely dependent on the mother's blood for its nutriment, would, with little doubt, be contributing in its effect in the cause of abnormal development.

Where the physician has been the one to bring the child into the world, he will know exactly how great may be the injury from prolonged labor and pressure of the head in its passage through the birth canal. If the case comes under his care later, these points must be carefully considered. It has been estimated that about ten per cent. of cases of feeble-mindedness are due to these secondary causes of difficult labor, illness or accident.

Following these considerations, the next important points for observation are the proper development of the child's co-ordinations and the time when these co-ordinated movements first appear.

A normal child is usually able to sit up by the ninth month, and should begin to walk and talk from the ninth to the fifteenth month. Many feeble-minded children do not attempt these acts until three, four and five years or even later. Two very important coordinations, i. e. the control of bowels and blader, should be fairly well developed at the end of the second year, in the child who has been properly trained. These are usually very late in developing in the child of mental defect, for several reasons, chief among them being the difficulties in muscular co-ordination, defective sensation, and the slowness in acquiring any habit. The most interesting point of normal development about the sixth post natal month is the dawning consciousness of self, and of great importance in laying the foundation for this development is the sense of touch. At the eighth, ninth and tenth months we find the normal infant maturing rapidly; his latent abilities become realities; there is evident a certain judgment of distance, which is shown in more accurate use of the hands; there is more purpose in the grasping movements; the child seems intellectually more alert and shows marked interest and pleasure in accomplishing his desires, and evidences marked astonishment when they fail, and there is a remarkable eagerness to seize and handle every article within reach. Walking, which is an intricate and highly co-ordinated movement, now begins to come under control. The usual normal child of ten months is not satisfied to sit

still; he must be up and doing. He begins first to creep, then to stand. At first these efforts are very crude, but after he has gained some confidence and has sensed the new experience, walking becomes possible. Forsyth says that "the psychological importance of the ability to walk cannot be over-estimated. The child is now able to concern himself with a wider area and discovers a thousand and one novel delights that urge forward his mental development at great speed. New experiences are of frequent occurrence and the eager intelligence of the child absorbs them like a sponge in water."

The opposite is, of course, true of the child of defective mentality. If he develops these traits at all, they are very late in appearing and very inert in their expression.

In the second year the vocabulary of the normal child, which has been wholly acquired through imitation of sounds heard, begins to assume decided proportions. First he stores up an ever increasing vocabulary, and in the second half of this second year he begins to form crude short sentences. The intellectual growth during this year is very marked, augmented as it is by the understanding of speech and his ability to use words and short sentences.

At the end of the second year most of the principal faculties have been acquired, though used in a very elementary manner. Large muscular co-ordinations are fairly under control; the child can run and skip, and some of the finer co-ordinations of the hands are in evidence. Color sense is also developing. Emotions become more complex. The child begins to evidence timidity and even fear. "Tears, which earlier marked periods of anger, now come at the call of sympathy and grief." The child displays real affection and is deeply swayed both by his fears and his affections, as occasion calls them forth. Imagination also becomes active; powers of observation become more accurate, and with the dawn of the fourth year, we find the little one ready to enter the kindergarten, where all these intellectual powers will come under wise guidance, and from now on co-ordination of the physical, mental and intellectual will actively increase. Here again we meet with decided contrast between the normal child and the child of true mental defect. The spontaneity, curiosity and interest which are characteristic of the normal child are either entirely absent or so lacking in force as to be negligible in the mentally defective child.

A very important detail in the diagnosing of mental defect is the close study of the physical and bodily characteristics of the child.

The circumference of the head is of moment, i. e. whether the child is microcephalic or hydrocephalic. Of course many physical abnormalities may be in evidence and the child not present mental defect, yet in the major number of cases these conditions play an important part. Stigmata in general do not positively diagnose a case as one of enfeebled mentality, yet they are very important factors in evidence, and if present with the psychological and nervous abnormalities already noted, are diagnostic. Among those which bear weight in the consideration of almost any case are—any deformity or asymmetry of the cranium, the epicanthic folds, which appear at the inner canthi; abnormalities in contour and size of the external ear, bent or curved little fingers. Abnormalities of the palate, tongue and dental arches, the character and texture of

skin and hair, defects of speech and sight, ability or inability to recognize and name the cardinal colors, the gait, when the child walks, must be observed, as well as the posture and the general poise and balance of the suspect. The ears should be carefully examined to detect deafness, due to impacted cerumen or diseased condition, and all the other senses should be tested for possible deficiencies. Symptoms of abnormalities in glandular development should also be looked for, especially those of thyroid, thymus and pituitary bodies.

From the foregoing statements the deduction is apparent that the early diagnosis of true mental deficiency is possible and should be made, because whatever of plasticity there may be in the human mechanism, is present to its maximum extent in early childhood, and the earlier the diagnosis the more hopeful is the prognosis under efficient medical control, and too, the possibilities for practical training are capable of being developed to their maximum.

The so called border-line case is not always evident until school age has been attained, and in fact sometimes appears to be an outgrowth of the lack of individual adaptation of school hygiene to the "ailing child." The early diagnosis of such cases in the schools, and the institution of the proper medical, hygienic, and pedagogical care, will result most favorably in the alleviation of such conditions, and help to a hopeful prognosis.

101 West 80th Street.

Iodine forms a harmless soluble compound with phenols, and its affinity for phenol is very much greater than that for living protoplasm, hence its unique value for all forms of carbolic acid poisoning.—*Med. Summary.*

ETIOLOGY AND DIAGNOSIS.

Chancre of the Scalp.—Ricord used to deny the possibility of chancre of the scalp and believed the latter to be immune to the first lesion of syphilis. *Journal des praticiens*, however, for March 15, 1913, states that such chancre is not uncommon from an infected comb, brush or razor. A kiss might transmit infection despite the supposed protection afforded by the hair, and as a matter of fact a scalp chancre is most common in infants and has been communicated even by the parents themselves. The vertex is the commonest location of a scalp chancre, then the parietal regions, the forehead, and last the occipital area. The attendant adenopathy is difficult to find in this latter case, although in the others it is distinguished without difficulty. It is possible, now that attention has been drawn to the possibility of chancre of the scalp, it may be discovered more frequently than formerly.

Acute Abdominal Conditions of Children. *From the Surgical Standpoint.*—Eldred Corner points out in an address given at the Hawaiian Society, London, and published in the *Practitioner*, May, 1913, that in this connection, there are two points which must be mentioned. Children from their superlative physiological activities usually show great and even exaggerated signs and symptoms, rapid pulse, high temperature, etc. Thus, if anything pathologic happens to them their warnings are generally too obvious to be overlooked. Indeed, they may be so emphatic as to obscure the clinical picture. Therefore with a child there is no great hurry to make a diagnosis, in spite of the importunities of relatives, it should be seen again in an hour or two and perhaps again. Then it is time to act. Secondly, a rectal examination should never be omitted before deciding against operation. It may be omitted if operation is decided upon, for the evidence derived from it may there be merely "coals to Newcastle"; but never when operation is decided against. Corner has repeatedly seen this form of examination make a world of difference. The two points he leaves for consideration are: multiple examinations at short intervals, and a rectal examination before deciding against operation.

F. Warren Low remarks in the discussion which followed the address that what every surgeon wants to avoid is the overlooking of an early case of appendicitis and one can forgive a few mistakes in the other direction if no case of appendicitis is missed in its earliest and therefore safest stages. There is one warning to emphasize, nearly all abdominal conditions in children start with pain which could generally be regarded as colicky in nature. Most parents and nearly all matrons of

schools regard abdominal pain in childhood as the just retribution for something like green apples or their seasonal equivalent, and the natural antidote to green apples is a dose of castor oil. He believed this simple procedure to be a fruitful cause of gangrenous appendicitis. He believes that the fiction of green apples is much exaggerated; that bilious attacks and attacks of colic in children are too often caused by mild catarrhal appendicitis and in a large proportion of cases a very little, the administration of an aperient for instance, would convert it into a dangerous disease. It is a golden rule never to administer aperients for abdominal pain.

From the physician's standpoint.—Cautley gave an address before the same society, giving it as his opinion that the main symptoms and physical signs on which a differential diagnosis could be based are vomiting, abdominal pain, constipation, the condition of the abdomen, the abdominal facies, collapse, toxemia, pulse rate, respiration and bodily temperature. These should be considered in relation to the chief diseases, notably appendicitis, intussusception, intestinal obstruction, peritonitis and simple colic. Of the utmost importance in inflammatory affections were the absence of abdominal movement and the presence of abdominal rigidity and tenderness. The rigidity might be the chief sign indicative of danger during the temporary improvement due to the relief of tension in a case of appendicitis. In all cases of colic, a dietetic cause must be sought for, but the presence of such a factor is not always the explanation. Many cases of appendicitis in the early stages were ascribed by parents and even doctors to unsuitable food; a rise of temperature in such cases was of considerable assistance. It is consequently somewhat dangerous for such patients to be treated offhand by relatives and friends or a school matron, on the assumption that the patient had eaten something which had caused colic and must be evacuated. Purgatives might be extremely dangerous and even if administered with impunity valuable time was lost. Probably in all doubtful cases it is to the advantage of the patient that both a physician and surgeon should be called in consultation before deciding that exploration is necessary.

Tuberculous Infection in Infancy and Childhood.—Evidence has been accumulating rapidly during the past few years that tuberculosis is pre-eminently a disease of childhood. Sir Robert Philip of Edinburgh, writing in the *American Practitioner*, October, 1912, went so far as to say that most children have it at one time or another and states that in his opinion the problem of its prevention and eradication can only be solved by the proper rearing of children.

According to Professor E. Emrys Roberts, writing in the *British Journal of Tuberculosis*, April, 1913, the chief evidence of the widespread infection is furnished by statistics from many sources regarding the von Pirquet and other tuberculin reactions. Calmette, in summing up various figures, states that up to the age of 1 year, 9 per cent. of all children examined gave positive results; up to the age of 2 years, 22 per cent.; from 2 to 5 years, 53 per cent.; and from 5 to 15, 80 per cent. These figures indicate percentages arrived at from the examination both of children obviously tuberculous and of those in whom the disease was not suspected. The figures recently obtained in Edinburgh by McNeil in the examination of 371 in-patients, who were not selected in any way, gave positive results as follows: Under 1 year, 14.1 per cent.; from 1 to 2, 29.9 per cent.; from 3 to 4, 46.6 per cent.; and from 5 to 15, 45.2 per cent. But where apparently non-tuberculous children are concerned, latent tuberculosis has been demonstrated by Hamburger, the positive results read: up to 1 year, 0.0 per cent; up to 2, 9 per cent.; from 3 to 4, 27 per cent.; from 5 to 6, 51 per cent.; from 7 to 10, 71 per cent.; and from 11 to 14, 94 per cent., or taking the average for purposes of comparison, from 5 to 15, 72 per cent.

Post-mortem evidence of unsuspected cases in childhood is also adduced in support of the figures obtained ror skin reaction. Roberts further points out that the incidence of tuberculosis in early infancy is probably greater than statistics show, is based on two considerations. 1. That anti-bodies are deficient and hence the tuberculin reaction is non-existent; and 2, that the tubercles present are often in the pre-follicular stage and therefore not detected microscopically.

TREATMENT.

Treatment of Scarlet Fever by Salvarsan and Neo-Salvarsan.[1]—At the German Congress of Internal Medicine held at Wiesbaden from April 15 to 18, Professor Joachim, Berlin, reported that he had treated 117 cases of scarlet fever by subcutaneous injections of Salvarsan in small quantities and that although an infection by the water used for the solution was excluded, slight accompanying effects were produced which were not at all dangerous. The curative action was satisfactory and the general state of the patients was improved, especially in soporous cases. The inflammation of the tonsils and fauces was favorably influenced, and necrotic portions of tissue were discharged more quickly than usual. Salvarsan had no influence either on complications or on mixed infection with streptococci. The fact that there is a positive reaction in some cases of scarlet fever suggested (Section of Pediatrics, N. Y. Academy of Medicine, March 13,

[1] *Lancet*, May, 1913.

1913) to Dr. Louis Fischer and Dr. Mathias Nicoll that possibly neo-salvarsan might offer specific therapeutic results. The five cases reported by Fischer and Nicoll were all septic and were chosen because the prognosis was fatal. A Wasserman examination was made in all five cases, three of these proved negative, one probably positive and one was unreported. All the injections were given intravenously. In such infants as the patients were the size of the basilic vein is so small that it was necessary to cut down and expose the vein at the elbow in order to introduce the remedy. The dose employed was 9.2 gram dissolved in 40 c. c. of plain sterile water. The five cases were all in a desperate condition when the injection was given, two of them being complicated by extensive noma and three died subsequently. Two of the patients were still living at the time of the report, the prognosis for one being good. The authors think that it would be unfair to draw conclusions from so few cases, but it is worthy of note that no reaction such as an acute febrile attack has been observed, neither had rash or shock followed the injury.

Treatment of Erysipelas.[1]—Arnold in his paper thus outlines his method of treating erysipelas: "For many years past I have used, in the treatment of erysipelas, a simple remedy which I believe to be as certain and even more rapid in its abortive action on erysipelas than the salicylate of iron as described by Dr. Lawrance. The remedy is buttermilk, which I order to be applied on soft rags—buttercloth is excellent for the purpose—which are kept constantly wet with the remedy.

About seventeen years ago, I had under treatment a girl of 19, suffering from erysipelas of the face and scalp. She was ill for several weeks, and had a great deal of pain, frequent relapses, and so on, but eventually recovered, and I sent her to the seaside to recruit. While there she very much overtaxed her strength by a long walk, and came home in a condition of exhaustion. The next day the erysipelas was back again in the face and scalp, the temperature ran rapidly up to 104°, and she suffered very severe pain. While waiting for the arrival of medical help, a friend suggested that some buttermilk should be procured and applied freely, saying that she had heard a farmer's wife say that buttermilk was a splendid remedy in erysipelas.

The suggestion was followed, some buttermilk was got and rags soaked in it were applied to the inflamed surface. The pain was immediately relieved and quickly removed altogether. The temperature remaining high, however, it was suggested that, in addition to the local application, she should drink buttermilk. She did so, with the result that the temperature dropped almost at once from 104° to 99°. The inflammation very rapidly subsided, and the patient was practically well next day. On returning from the seaside, the patient came to see me, and gave me a clear account of the whole experience. The evidence seemed good enough to justify a trial of buttermilk in any subsequent case.

The opportunity occurred in a case of facial erysipelas in a man, who had had a severe and obstinate attack, about two years previously. There was an extensive inflammation, with high temperature and great pain, when I was called in. I ordered buttermilk to be applied freely and continuously. The spread of the inflammation, which had been rapid up to that time, was immediately checked and the pain entirely relieved. The whole morbid process was aborted, and the next day the patient was practically well.

I need not give other cases in detail, but I may say that since that time—some seventeen years ago—I have treated every case of erysipelas I have had to deal with by this method. The application must be very free, the cloths not being allowed to dry, but being kept constantly wet with the buttermilk. This method has given me quite uniform results; the spread of the inflammation is immediately checked on the application of the buttermilk, whatever the stage of the erysipelas; the pain disappears, and the whole morbid process rapidly aborts.

[1]F. S. Arnold, M. B., M. R. C. S., *The Practitioner*, May, 1913.

HYGIENE AND DIETETICS.

The Treatment of Milk.—von Dungern's process for treating milk by means of pegnin is designed to prevent the deleterious hard clotting of the cheese making materials in the stomach. The large curds which otherwise form when milk first reaches the stomach are by means of this process, formed outside of the body, and can then be speedily reduced by shaking and stirring. The casein of milk so treated is finely divided when taken, is therefore easily digested, and may be given to the youngest child without harm.

Milk treated with pegnin is administered successfully to persons who cannot tolerate ordinary milk, and yet for whom a milk diet is apparently indicated. It is free from deleterious germs, and contains nothing which interferes with digestion.

Directions for use: All bottles and stoppers are to be well cleansed by boiling.

The milk required for the day is immediately upon delivery placed in a large glass bottle; the bottle should not be quite full. This is placed in a vessel containing cold or lukewarm water, and the water raised to the boiling point, which should be continued for half an

hour. Milk for infants should not be diluted with water at this stage.

After boiling, the milk is cooled to about 40° C. or 104° F. This cooling should be done gradually in order to prevent the breaking of the bottle. If the milk becomes colder than 104° F. it is warmed again to this temperature.

To each quart of milk is added five measures of pegnin, a measure being supplied with each bottle, or one measure full to each 8 ounces of milk. After the powder has been well mixed by shaking the milk for a short time, a delay should take place sufficiently long for the milk to coagulate. This takes place within a few minutes, usually two or three. Should the milk not coagulate promptly it is highly probable that water has been added to it.

After the milk has coagulated the bottle is closed with a clean stopper, preferably glass or rubber, thoroughly shaken for a few minutes, or until all the clots have completely disappeared.

The milk is now ready for use. It must not be again strongly heated. If dilution with water is necessary, as with very young children, it should be done at this stage, but not more than an equal volume of water should be used for dilution. Boiled water, of course, is preferable for this purpose.

Milk thus prepared is kept in a well stoppered bottle in a cool place until required, when it is again shaken, put into the feeding bottle and warmed to 37.5° C. or 99° F. and given to the child.

The warming of the milk to the body temperature is best done by holding the bottle in lukewarm water. Stronger heating causes the finely divided curds to clot again. Milk must be again shaken in the feeding bottle.

Investigation of Effects of Pasteurization on the Nutritive Value of Milk.—It is announced in the annual report of the Surgeon General of the U. S. Public Health Service for the fiscal year 1912, issued recently, that a joint letter dated April 4, 1912, has been received from a committee representing the Washington Section, Woman's Welfare Department of the National Civic Federation and the Association for the Prevention of Tuberculosis in the District of Columbia, urging that a study be made by the service in cooperation with the Bureau of Animal Industry of the Department of Agriculture as to the effects of pasteurization on the nutritive value of milk and also of the relative value of raw and pasteurized milk as food for infants and invalids.

The Service has decided to take up the studies suggested as soon as the Bureau of Animal Industry will be in a position to furnish the milk needed, as the milk used must necessarily be under the control of those making the investigation. The necessary supply of milk will be forthcoming on July 5th, 1913, and a feeding station with the necessary equipment has been established at the Hygienic Laboratory. It is planned to continue the investigation for at least a year, and preferably longer, in order to make the results of real value. The results of the investigation will be published in a bulletin, the two bureaus interested to receive full credit for their respective parts.

GENERAL TOPICS.

English Speaking Conference on Infant Mortality in London.—An English speaking conference on the prevention of infant mortality will be held in Caxton Hall, Westminster, London, on Monday morning, Monday afternoon and Tuesday morning, August 4 and 5, 1913. The meetings will be held under the auspices of the British National Association for the Prevention of Infant Mortality and the Welfare of Infancy, under the patronage of the King and Queen, and will convene immediately before the opening of the International Medical Congress. A tentative programme has been issued by the Committee of Management which indicates that the papers will relate largely to the medical aspects of the question and will embody medical opinions as to the best modes by which to prevent infant mortality. The subjects dealt with will be "The Responsibility of Central and Local Authorities in Infant and Child Hygiene," "The Administrative Control of the Milk Supply." "The Necessity for Special Education in Infant Hygiene," "Medical Problems in Infant Nutrition," "Ante-Natal Hygiene."

The President of the Conference will be the Right Hon. John Burns, President of the Local Government Board and an ardent reformer in all matters concerning the welfare of the working classes. Mr. Burns is responsible for the recently passed Milk and Dairies Bill which will come into force in England in October next, and which is perhaps the most comprehensive measure relating to the care and preservation of milk which has become law in any country. The Chairman of the English Executive Committee is that grand old man of British medicine and authority on children's diseases, Sir Thomas Barlow, and the Secretary, Miss J. Halford, 4 Tavistock Square, London, W. C.

Lady Aberdeen, Mr. Pease, Sir George Newman and Dr. Arthur Newsholme are among those who will preside over the various sessions into which the two sections, administrative and medical, are divided. The United States and a large number of colonial governments will be officially represented and the British railways and steamboat companies with services to this country and the colonies have all granted special travelling facilities The Corporations of London, Liverpool and Glasgow have contributed towards the expenses of the Conference and several other British cities and towns are sending contributions.

The American Committee in charge of the part to be taken by the United States and Canada will furnish information to those desirous of attending the conference; Dr. Henry L. Coit, Chairman, 277 Mount Prospect, Newark, N. J.; Dr. Philip von Ingen, Secretary, 125 E. 71st Street, New York City.

A Monthly Journal devoted to Child Welfare.—*The Child*, edited by T. N. Kelynack, M. D., April, 1913. Single copies, 50 cents. Annual subscription, $5.25. Agents for the United States of America, G. E. Steehert & Co., 151-155 West 25th Street, New York City.

This monthly journal, although it has been established in Great Britain for some little time, is not so well known in this country as it deserves to be. In the first instance, it occupies a field practically by itself. That is to say, it deals with questions relating to the child which are just outside the scope of medical treatment, or perhaps a more apt description of its intentions and accomplishment would be that it is a sociological journal on the borderland of medicine. Occasional medical papers, written in language devoid of technicalities, are published, but it is more concerned with social and domestic problems affecting children. It is excellently edited by Dr. Kelynack and well arranged and printed.

Now to review the April number for this year in detail, as this number is a fair specimen of all the issues:

The first paper is the completion of a monograph on "Ambidexterity" in two parts by Dr. H. Macnaughton-Jones, and is particularly good. Dr. Jones is one of the best known of the British gynecologists and is a leading authority and writer on gynecology and obstetrics. He is likewise an authority on ambidexterity and his arguments in support of a child being taught to use both hands equally well are ingenious and based on a solid foundation. For example, he points out that the discipline involved in teaching a child to use both hands with facility, has a remarkable beneficial effect on character. Perseverance in effort was Pasteur's motto, and the great Frenchman is the most conspicuous example of success gained by following this motto who ever lived. Dr. Jones' paper is a strong plea in favor of including the teaching of ambidexterity to children of both sexes.

The next paper deals with the training of boys and girls for social service and is written by Elizabeth Grierson. By training for social service is meant the training of the slum children, who are more in evidence on the other side of the Atlantic, to be of use rather than a drawback to the community. This is undoubtedly one of the most serious problems of the day. The unfit are propagating at a much faster rate than the fit, and unless steps are taken to remedy the situation the results must be disastrous. Miss Grierson shows the good that can be accomplished by training the children of the streets in some useful trade.

Emelia v Kauthack de Voss has contributed a forcible paper on the vexed and greatly discussed question of sexual instruction to children. Her paper is an able presentation of a thorny subject and may be commended to the consideration of American mothers who are beginning to rouse themselves with regard to the need of imparting a certain amount of instruction on sexual matters to their children.

Miss J. Spencer Carwen has a paper on the teaching of music to young children and others. Dr. C. A. Adair-Dighton of Liverpool discusses in easily comprehensible language the hygiene of the ear.

Frank Richards gives an interesting account of Kingswood School, a school which was founded for secondary education in 1746 by the great John Wesley, after he had carried out in 1739 Whitefield's scheme which provided an elementary school for the children of Kingswood colliers. The Wesleyan Conference is now the governing body of the school which is described by Mr. Richards, is situated in a large building near Bristol and appears both from the description and from the illustrations to be a flourishing institution of its kind.

Mr. G. C. Brown describes the College for the Higher Education of the Blind at Worcester and under the heading Pioneers and Benefactors a brief outline sketch is given by Mr. Francis H. Wood of George Andrew Hutchinson, known throughout the world as the founder and editor of the *Boys' Own Paper*.

"Child Welfare in the Metropolitan Borough of Shoreditch" is the title of a paper by Mr. John Turner Rae. Shoreditch is inhabited solely by the poorer working classes and as Mr. Rae points out, affords a favorable ground for observation and inquiry on all three aspects of child life, infantile, school age and after.

Under the heading Critical Survey are furnished month by month concise critical summaries of the more important results of recent researches regarding problems relating to the child. Each survey is written by an expert. In the number under review, Alexander Mitchell, M. A., Ch. M., Assistant Surgeon to the Aberdeen Royal Hospital for Sick Children, summarizes the most recent views as to the pathology of appendicitis in childhood.

Under the heading For the Sake of the Child particulars are given of the aims, objects and methods of various organizations dealing with the study and welfare of children. The Sheffield Churches' Poor Children's Committee is touched upon by the Rev. A. J. G. Seaton in the April issue.

Under the heading, Health, Holiday and Educational Resorts, descriptions are given each month of health, holiday and educational resorts suited to the particular needs of child life. Ukley, one of the most lovely inland health resorts of England, is described in the April issue by Mr. J. W. Walker.

Under the heading of Abstracts, Extracts and Notes, thoughts from literature both an-

cient and modern, relating to child life, are set down.

Under the heading of Ways and Means descriptions are given of preparations and appliances, new and old, likely to be of service in the study and management of child life.

Under the heading of Yesterday, To-day and To-morrow, appear miscellaneous notes of current events and other topics relating to child welfare.

From the above fairly exhaustive review it will be gathered that the *Child* is an interesting, instructive and useful journal in all that pertains to child life and welfare. It may be said also that it is well printed and capitally illustrated.

The Importance of Children's Hospitals.[1]—In a thought inspiring article, Holt points out the great necessity for a children's hospital in every community and emphasizes its importance as a separate and distinct institution of the utmost value to the public. He shows that the construction, the equipment, the organization, and the operation of a hospital for young children are quite different from those needed in hospitals for adults. These grow out of two great difficulties which attend the hospital care of these patients; the problem of nutrition and that of ward infections. These necessitate smaller wards, ampler provisions for the separation of patients in doubtful diseases, and in diseases of feebler communicability than our ordinary contagious diseases. Not only must there be sufficient provision for fresh air and proper ventilation for acute infectious cases and pneumonia, we must have also wards in which a temperature much higher than the usual room temperature can be maintained for the congenitally feeble, the marantic and the premature infant. The nutrition of feeble infants is always difficult even in a state of comparative health; but with acute illness added, the difficulties are greatly increased. The feeding especially must be exact and requires special equipment and specially trained service. There are many other particulars in which the operation of an institution caring for the very young must be carried on in an entirely different manner from methods pursued in an adult hospital. It has been the author's observation and experience that boards of managers, hospital superintendents, and head nurses can rarely be made to appreciate them. Forming only one department of a large institution, and that usually a small part, it is seldom the case that anything like adequate attention is given to the wards for infants and young children.

In the past our hospitals have represented our philanthropy. The modern hospital, while not losing its philanthropic character, is to be classed among the institutions of higher education. The academic hospital in particular is to be so regarded. Properly equipped and administered, it is altogether the most productive of all the college laboratories. Proper teaching does not interfere with the best care of the sick, but rather should contribute to it. This is particularly true of little children, who have no prejudices to overcome, no modesty to be shocked, and no sensibilities to be hurt; but since they cannot describe their pains or express in words their wants, they require the closest kind of individual study and observation. No better opportunity can be afforded for the training of the medical student than to place him in a hospital ward with sick infants and teach him how to observe them. One who would succeed in this specialty must not only know disease, he must learn to understand children.

The provision for the care of patients must be of the very best; while not extravagant the best possible hygienic conditions for the treatment of the sick must be furnished. While it is important to give our students the scientific point of view, we must, at the same time, equip them with the facts and the training which will enable them to do as well as possible the common every-day things which are needed in practice. It is altogether probable that fully four-fifths of your students will be practitioners of medicine, and that the other fifth will, as parents, be called upon to put to practical use the teaching of this department.

Research work, while of the utmost value to the hospital, is of little importance to the average student. Now and then a genius appears in our medical schools who should be encouraged to take up new problems. But there are few men who are not the better for having spent four years, as a preliminary training, upon the regular courses. Only in this way can they obtain the breadth of view which will enable them to connect their scientific work with the great practical problems of medicine to-day.

Provision for research in the special hospital should be ample, and this department should be generously supported, for here are opportunities found in no other institution. The close association of the scientific and the practical workers under one roof is of immense advantage to both. Research work should not be conducted along pathological or chemical lines only, but it should be clinical also. All these lines of investigation should be carried on simultaneously. The present disposition to undervalue the clinical side and put the emphasis upon the purely laboratory side of research is most unfortunate. Students and young assistants should not get the idea that the only scientific observations in medicine are those made on guinea pigs. There is urgent need at the present time not only for technical training in the use of the newer aids to diagnosis, but for the closest kind of clinical observation of disease, especially in young children. Nearly the whole fabric of infantile therapeutics must be constructed anew from the standpoint of recent advances in medical science.

[1] L. Emmett Holt, *Bul. Johns Hopkins Hosp.*

45

American Medicine

H. EDWIN LEWIS, M. D., *Managing Editor.*
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.
Copyrighted by the American Medical Publishing Co., 1913.

Complete Series. Vol. XIX. No. 7.
New Series, Vol. VIII, No. 7.

JULY, 1913.

$1.00 YEARLY in advance.

The crusade for a spotless town, as inaugurated by Health Commissioner Lederle, deserves the support of everyone, as it is a proved necessity, if we are to prevent the preventable diseases which have yearly taken their dole of deaths. Everyone should appoint himself a local board of health for his own premises, and perhaps he will when we have succeeded in convincing him that it is the proper thing to do. A campaign of education is highly necessary as we notice a tendency here and there among the ignorant to complain of "too much sanitation." The objectors simply do not know that their existence, itself, depends upon these very measures of hygiene and sanitation. We therefore commend Dr. Lederle's proposal to use the public schools as a means of carrying knowledge of the facts to homes which are dangerously filthy through sheer ignorance. There is probably not a house in the city which is perfectly free of trash—useless truck saved for goodness knows what unless it be that old delusion that everything comes in useful at least once in seven years—some dirty old rags for instance. Most of the trash in the cellar or garret is free of disease germs, to be sure, but it collects filth which is not safe and besides it harbors the vermin which carry diseases. So the school children can do an immense amount of good towards making the town spotless. They have "turned the trick" as to eliminating mosquitoes in many a locality which was a hotbed of malaria and in danger of yellow fever. They are doing good work in the elimination of flies—not by "swatting" them but by cleaning out the breeding places. But we need more prophets in the "wilderness of filth" to cry out this gospel of cleanliness. Volunteers are needed—committees, clubs, civic bodies of all kinds. Everyone is interested in the city beautiful, but how can it be beautiful, if dirty? In this matter we would urge people to be a little more self-reliant. Don't dump the stuff on the sidewalk and shriek for the ash-man or street cleaner. These two organizations are for current filth—if we may so describe the unavoidable daily collections. Why not hire a wagon one's self and thereby show a willingness to spend a little money doing something, as well as time and labor teaching others what to do? We have shown that we will not be healthy until we do have a spotless town, and we simply must have it—cost what it may. But the cost won't hurt us. So get to work, good citizens!

In regard to the preservation of meat, an observation of some importance was communicated on January 14th to the Paris Society of Comparative Pathology, by M. Pietre. It appears from this gentleman's researches that the first step towards

putrefaction in meat, and especially in game and poultry, occurs during the process of post mortem cooling, and is due to the invasion of the superficial tissues by a proteus bacterium. This microorganism, which takes the Gram stain, and is of large size, aerobic and remarkably motile, gives rise to the formation of ammonia and hydrogen sulphide, detectable by their characteristic odors. It also produces a greenish discoloration following the course of its extension, evident superficially and particularly affecting the fatty tissues. It multiplies and disseminates itself especially by the veins with remarkable rapidity. In meat that has begun to taint with this organism before it is put in cold storage, the putrefaction is merely inhibited during its stay in the refrigerator, and the process continues on removal therefrom. This contamination is apt to occur whenever the process of post mortem cooling is prolonged or delayed as is frequently the case with game and poultry. M. Pietre therefore urges the cooling down of foodstuffs as rapidly as possible after death to 15° C. thus not only checking the development of this bacterium, but hastening cadaveric rigidity. He contends that it is before, rather than after, viands are put in cold storage that careful inspection is needed; for if this tainting has not begun at the time they are put into cold storage they will be perfectly sweet and wholesome on removal therefrom. This observation, if it should be verified, is obviously of great value both scientifically and commercially.

The necessity for women to work will probably be forced on the attention of publicists now that serious strikes and lockouts are so frequent in callings employing only women. We are prone to forget that prior to the industrial era, manufacturing was done at home and that women did the most of it—even the children having a share. Competition from the struggle to live, always brought down labor prices to the existence level, so that the family could not exist unless all helped in the work. We forget that our colonial ancestors could not have survived unless the women did a large share of the farm work. It was beyond the power of any man to run a farm without his wife's aid. In Europe much of the field work still falls to the women. Those crowded out of the farm by ordinary increases of population must still work to support themselves. There is then nothing new or startling in the announcement that ten million women in Germany are wage earners. They have always been wage-earners—poor things. Ever since family life began, they have worked at agriculture, weaving, tanning and pottery, while the men found meat, made weapons and houses and kept off intruders. It is not true then that women are invading men's spheres and lowering wages. The process has been the opposite. The gradual evolution of civilization rendered it unnecessary for every man to be a soldier. Defense has been confined to a progressively diminishing percentage. Every man released had to invade woman's sphere of providing for the family and through superior strength men have practically excluded women from certain industrial lines. Of the ten million German women wage earners nearly a half are married or widows, and if we take into consideration those married workers who help husbands and are not wage earners in the strict sense, we can well see that such work is necessary for survival. What is really appalling though, is the fact

that about eight million, more or less, are able to do only the commonest kinds of manual labor for very small wages. It is really amazing how few men in the world have been efficient enough to support a family without their aid and those who can afford to hire domestic help are still fewer. There are said to be only one and a third million female domestic servants in the whole German Empire. The vast majority of women must work for existence now as in the days when all lived on farms where an idler could not be tolerated. We have said all this before and expect to say it again and again, with the view of forcing a sanitary reform in the conditions under which many a woman is forced to work. To a certain extent every modern employment is unnatural and unwholesome for women in that the physique is subjected to strains for which it is not built, and it is dreadful to think it is made worse by unnecessary adversities. How can pelvic troubles be prevented if shop girls are compelled to stand up all day and are discharged if they sit down in their few idle moments? Their physical frailness limits them largely to indoor callings and they are deprived of the fresh air which is the great compensation for field workers. Every other sanitary factor must be similarly considered, as well as ventilation. So we urge that the splendid work done by factory inspectors be extended to include every conceivable item which could adversely affect the women who must work to live and have been forced by men from the farms and home industries—or perhaps we might say they have been drawn from the farms by the prospects of making a living with less effort than their ancestors. We might add that the percentage of women who need not work for wages and can depend upon husbands or relatives for subsistence, seems to be steadily increasing, but whether the time will come when men will do it all, is an open question. The chances are the majority of men never will be able to support a wife and three children to their working age, unless she does a large share of the work.

Yet another antituberculosis treatment is having a trial in London. At the Infirmary for Consumption, Margaret Street, a new serum termed "Contra-toxin" is being used. The inventor, Dr. Frederick Melmarto, of Heidelberg, claims for his preparation that it is founded on the fact that the blood plasma of some reptiles acts as a haemolytic agent while that of others acts as a coagulant to human blood. By combining these reptilian types in the sensitizing of sheep's blood, he claims that the red corpuscles of the latter are no longer absorbed by water, while the blood becomes strongly bacteriolytic. The result of this process is the production of a serum which is asserted to produce lysis of various microorganisms without haemolysis of human blood. In certain experiments carried out by him with animals suffering from trypanosomiasis the lysis of trypanosomes occurred within 24 hours without in any way injuring the affected animals. He states that the production of a high degree of immunity against various microorganisms in human beings and animals leaves the blood of these human beings or animals nevertheless incapable of producing immunity in others. As to the treatment of tuberculosis by this means, it is being carried out by independent medical observers, but it is stated that so far the results of the treatment are encouraging. The ex-

perience with Dr. Friedmann naturally renders the profession very shy of such claims. The only sensible course is to "wait and see."

May Every Dyspeptic Eat Oysters? In another month the oyster will have concluded his domestic duties, started his immense annual progeny on a career, and be ready once more for the martyrdom of the dredge. It is popularly supposed that the oyster digests himself in the human stomach owing to the great size of the liver which is crushed as mastication begins and is thought to discharge its digestive juices freely over the remainder of the fish in a sort of glorious self immolation for the benefit of happy mankind. As the oyster, moreover, contains some ten per cent. of extremely assimilable protein together with phosphorized fats and glycogen, it is evidently an excellent food and it has always been freely administered to convalescents, while dyspeptic *bons vivants* have never hesitated to eat it abundantly, however dubiously they may have regarded the rest of the menu. The salt contained in the oyster and the lemon juice in which it is usually served are stimulating to the gastric mucosa. Pron, in *Journal des Practiciens* for March, 22, 1913, expresses the opinion that the oyster may be allowed, therefore, to those dyspeptics whose gastric functions are deficient, in anorexia, gastric atony, ulcer and incipient cancer, and to convalescents from acute disease, as they are likely to improve the appetite and to excite the stomach to increased motor and chemical activity. But to the large number of dyspeptics whose stomachs are hyperacid or hypersensitive, Pron would forbid the oyster as well as all other stimulating foods, restricting them largely to the less sapid ailments which are not so likely to cause irritation in their particular case. In many of these dyspeptics the gastric secretion is already sufficient, and it is unnecessary and unwise to increase it.

Meats Now Under the Food and Drugs Act. Status Lymphaticus. It is fortunate that at last domestic meat and meat food products have come under the provisions of the Food and Drugs Act. That the Department of Health has taken no action after repeated exposures by a New York daily paper of the shameful conditions existing in many of the retail and wholesale butcher shops can be attributed only to the fact that the Department is perpetually and, it would seem, designedly kept undermanned, on the basis probably that there are other conditions in which the public is less able to help itself than in the purchase of meat. Housekeepers are notoriously careless in the choice of meats and are only too easily persuaded to purchase "bargains"; indeed a boarding house keeper who failed to buy the cheapest meats would be false to all the traditions of her profession.

The Department of Agriculture is now empowered to seize and prevent the sale of bad or adulterated meat and the Government can control meat foods in interstate commerce from the hoof to the retailer. The definition of "misbranding" is far more stringent than the old rule preventing the sale of meat products under a false or deceptive name.

The class which will be most protected under the new law comprises victims of the status lymphaticus or thymicolymphaticus. These children, as is well known, often

have a deceptive appearance of rugged health owing to their fatty condition. Very often, by one of Nature's apparent compensations, they are extremely bright, attractive and lovable youngsters and their usually sudden death produces a tremendous shock to the unsuspecting parents. Despite many opinions to the contrary they do not yield with especial facility to the ordinary acute diseases, nor are they particularly susceptible to anesthetics. To all pathological gastroenteric conditions, however, they succumb with terrible ease. The corned meats, which are particularly likely to be contaminated, should never be given to these children, nor any of the canned goods, while the candy, etc., between meals, which the ordinary child may enjoy with impunity, should be rigidly *tabu*. These children should also be watched at meal time in order to check their inclination to "stuff." With unceasing vigilance throughout childhood, such a child may repay the extra care by outgrowing the lymphatic condition at puberty yet retaining the exceptional intellectual gifts. One heavy meal of a highly spiced canned meat or a corned beef hash made from meat obtained from a butcher of the second class, a spoiled can of salmon, chowder, clam broth will, before puberty, poison the lymphatic child beyond hope from the most skillful aid.

A curious characteristic of the lymphatic child is its varying appearance from day to day; from an extraordinary look of plumpness it will drop in twenty-four hours to one of extreme leanness, a phenomenon due possibly to anasarca. The enlarged thymus can usually be made out, and the blood count, which should always be made, will generally disclose a lymphocytosis. It is timely to note that many cases of sudden drowning have been attributed to the existence in the victim of the status lymphaticus.

An Unusual Type of Consumptive. If a man obviously weighing over 225 lbs. were to invade your office and begin his history by stating that he had been under treatment for pulmonary tuberculosis for some years and desired an examination in order to determine if he was quite out of danger, would you at once set him down as a psychic case, or would you gravely begin the physical examination? You might find a hyperresonant chest and few other physical signs of disease, save possibly a dilated heart. Yet, as Dr. Edgar Hirst pointed out recently to the Academy of Medicine of Paris, general emphysema is one of Nature's common means of defense against pulmonary tuberculosis. Unfortunately it is not always successful; and intercurrent disease, excessive fatigue, lack of proper food, or other depressing factor may cause the reappearance of the Koch bacillus with signs merely of bronchial asthma or chronic bronchitis. The patient then becomes a source of danger to all about him; ignorant of his condition and suspected of nothing more serious than the bronchial disturbance, he sows freely in every direction his deadly bacilli. In treating a case of emphysema hereafter, one should never take it for granted that the case is as simple as it looks, but undertake a most careful examination in order, if possible, to tear the mask from a possible tuberculosis.

Confirming the New View of Alcohol; Must We Give this Drug up? At the recent medical conference in Germany, Ewald expounded the latest view of alcohol, stating that all theories to the effect that it is to be classed as a stimulant are about exploded. Those who are always waiting for some medical oracle to speak can now come over without fear to

the modern consideration of alcohol as a sedative or anesthetic. This view of alcohol has been taught for many years in the United States and there has never been a single weighty argument against it, the only objectors being those who relied on the always deceptive subjective sensations after the ingestion of the drug. Tests without number have been made upon compositors, gymnasts, lifters of heavy weights, etc., with the almost universal result of finding impairment of efficiency and strength after quite moderate doses—or what an average drinker would consider such. It was frequently difficult to persuade the subject of the experiment that he was really doing less work under the alcoholic influence, so extraordinary is the masking effect of this agent. What really happens when alcohol has produced its physiological effect is not a stimulation of the direct nervous supply, but a paralysis of the inhibitory power. It can readily be seen how this is apparently the same thing to the subject.

Ewald is said to have maintained, however, that alcohol would no longer be used in illness, but such a sweeping change in our therapeutics is not quite likely. Where there is obviously great pain or suffering in acute illness, there is no reason why a sedative like alcohol should not be exhibited; whatever gives ease and quiet will help the general resisting power and there remains a large field for alcohol, even with its real character fully recognized, as a drug of the same class as opium, less powerful and also less dangerous. General knowledge of the exact properties of alcohol may possibly have a notable influence on future legislation, but its abolition as an aid to social enjoyment and intercourse is yet far off. Public opinion must recognize some day that there is a vast difference between diplomat, banker, or scholar taking a glass of burgundy or champagne or even beer with a meal and the criminal or degenerate individual swallowing glass after glass of powerful spirits, absolutely regardless of food and with a more or less conscious intention of attaining complete oblivion as quickly as possible.

There may be a revision of our notions concerning stimulants, sedatives and tonics; perhaps strychnine and caffeine may now be said to represent the first, opium and alcohol the second, and iron and quinine the third.

The Popular Use of Mercury Bichloride. The extraordinary number of cases of poisoning among women from mercury bichloride that have come to light recently, show that a campaign of education concerning this powerful poison is advisable. Whether the practice is good or otherwise, there has of late years been a tendency among women to carry out regularly a sort of toilet of the vagina similar in a way to that advised for the nose and throat. Now every physician knows that mercury has no more value in one case than the other and even most women would hesitate to take a nasal douche or gargle of corrosive sublimate. Physicians, under the circumstances, might well instruct their women patients that there is absolutely no condition, in which home treatment of the vagina is advisable, that a mild solution of boric acid, zinc sulphate, or even common salt will not accomplish better results than can come from mercury, while they should point out in forcible language the great danger of poisoning from solutions as weak

as one in 5,000 when in contact with mucous membranes.

There is another lesson to be learned from these poisoning cases. In every instance the victim has taken the bichloride tablet in mistake for some other preparation, usually "dope" of some kind sold to cure headache. This throws a little light on the practice of having powerful drugs at hand for self-dosing. It is beginning to look as if we should have to devise some new method of handling poisonous drugs, keeping them more in the hands of the profession perhaps, or perchance simply divorcing their sale from that of hair-brushes and soda water.

Criticisms of trained nurses are becoming rather frequent of late, not entirely undeserved, perhaps—nurses would hardly be human if perfect. In every group of nurses as in every group of doctors there are degrees of imperfection and the most imperfect had better be in other business. Though our technical schools try to prevent the graduation of those unfit, it is not possible to detect all, nor is it possible to exclude those who are temperamentally unfit though learned and skillful enough to pass the absurd memory tests which a few foolish teachers still consider the only way of testing practical fitness. So we must be resigned to what has been the rule since the beginning of all things and will continue to be the rule until the end of all things—some of us and them are not as good as we ought to be. Yet it is not right to spank—we mean reprove—all trained nurses because one now and then is found to be possessed of feminine characteristics instead of the cold sexless professional ones they are supposed to be able to assume. Do they lack conscientiousness? We have not noticed such a fact. Have they an all pervading sense of their own importance—spoiled? We are afraid a few have and are. There is nothing inconsistent in their desire to be treated as ladies upstairs and yet gossip and joke with the kitchen population—though it may be quite undignified. We must confess that it is a difficult task to be two things at once—servant and master—for the nurse like the doctor is really rendering personal service for pay like a valet or maid, while in control of the one served. Surgeons were once a little lower in the social scale than valets, and have raised themselves by making their work beyond the reach of valets. Nurses, a half century ago, were a little lower than maids, and must not expect to be placed where they belong all at once. For the time being, they must expect to be betwixt and bechune and to do servants' work where there are no servants to do it for them—doctors do the same in every lowly home. As for the *Sun's* advice to give them all less theoretical training and more instruction in their relations to patient, family and servants, the trouble is the extreme difficulty of defining those relations. We must leave a great deal to the nurses to decide for themselves. We are afraid that the criticisms are due to a few tactless women who are unable to adapt themselves to circumstances which can not be the same in any two households. We are sorry to see ourselves blamed for the shortcomings of the few, and are really hurt at the charge that we are to blame for "spoiled nurses." Goodness knows we have tried to bring them up in the way they should go, and have not spared the rod. But, drat them, as soon as we have made one nearly perfect, she runs away and gets married.

The danger of the lighted cigarette stub must be given more attention. Already it stands convicted of two terrible fires in which many lives were lost. The scenes enacted were frightful enough, even if they had been caused by unavoidable circumstances, but when directly attributable, as official investigation indicates, to lighted cigarette stubs carelessly and criminally thrown around where inflammable material was known to exist, they take on a new and horrifying significance. It hardly seems possible that there are human beings so lacking in a fundamental sense of precaution, to say nothing of the ordinary instincts of care and common sense, who would throw away a burning cigarette without another thought of the possible effects. Such an act is so indicative of a complete indifference to the rights or safety of others that the culprit places himself at once outside the pale of society. Such irresponsibility on the part of individuals not mentally unsound is nothing less than criminal—and it should be considered on this basis alone. A person who does not care what afflictions or injuries he imposes on others has the essential instincts of a murderer. That his carelessness and utter disregard of the possible harm to his fellow beings does not always cause inconvenience or suffering means nothing. In fact, that serious consequences rarely follow his negligence does not make it any less criminal. The quality of his acts are measured by their possible results, not by what actually follows. It is the "don't care" spirit, therefore, that constitutes the irresponsibility of the individual, an absolute indifference to the outcome of acts which are known to be reprehensible because they are so often done slyly and secretly.

The situation will be seized by many as an object lesson on the subject of cigarette smoking. We protest, however, that this irresponsibility which makes an individual of ordinary intelligence criminally negligent of the safety of others, is in no way due to the use of cigarettes. In fact, it is as frequently met in those who smoke on rare occasions as in the most inveterate users of tobacco in any form. In all fairness, there is no causal relation between cigarette smoking *per se* and the phase of perversion we have been considering. Countless cultured and educated men smoke cigarettes and there is no lowering of the sense of responsibility in their case. They are keenly alive to the human obligation of safeguarding the property, persons and lives of their fellow beings, and are consequently never guilty of deeds that endanger them. No matter how much they smoked there would be no lessening of their recognition of the obligations imposed on them as human beings, nor failure on their part to exercise the precautions that go hand in hand with decency, common sense and ordinary carefulness.

The question of cigarette smoking —no matter what objectionable features it may present common to all habits when followed to excess—has only incidental connection with the criminal negligence under discussion. Common truth and justice make any other conclusion impossible. A person with a normal sense of responsibility may smoke cigarettes as freely as he wants to and never jeopardize the property or persons of others. On the other hand a person who lacks a sense of responsibility may smoke but once in his life, and by the careless deposition of his lighted stub be the cause of the direst re-

sults. It is a fact of direct significance that the great majority of those who have been guilty, not only of violating the most stringent rules and regulations against smoking, but of criminal negligence in throwing lighted stubs around, are recent comers to this country. With rare exceptions they have grown up in their native lands under conditions which have fostered fear rather than respect for law and social regulation. Too often, therefore, a rule or restriction creates no other sentiment than antagonism and a very positive intention to evade, circumvent or ignore it, if possible without being apprehended. This, unfortunately, is the common attitude of many of the foreign classes that come to our shores and the problem presented is indeed a serious one. Without a sense of personal responsibility, a realization that rules against smoking, for instance, are to safeguard lives and property, these laborers are bound to remain a constant menace in their communities. In matters of public health the problem is very similar, although obviously a higher order of intelligence is needed to appreciate hygienic and sanitary restrictions than rules against promiscuous smoking. The great bulk of these newcomers may be excused somewhat for their attitude toward public health measures, for they cannot understand their importance. More education is needed along these lines before they can be expected to realize the part the individual plays in the prevention of ill health and disease. But with the simpler matter of smoking in prohibited places, or the careless throwing around of lighted stubs and matches, lack of education is no excuse. The most limited intelligence can appreciate the danger of doing these things sufficiently to make the individual aware of his personal liability. The overt acts of such individuals become, therefore, nothing less than criminal negligence or actual crimes—and should be treated accordingly.

The seriousness of the situation as evidenced by the awful calamities that have occurred in New York and Binghamton calls for laws against smoking in factories, stores, halls, theatres, subways, public vehicles, any place in fact, where it offers the slightest annoyance, inconvenience or possible danger to anyone. The careless or indifferent throwing around of lighted cigar or cigarette stubs, matches, etc. should be made an offense punishable by more than a moderate fine. In fact, the only solution of the problem is a comprehensive law against smoking in prohibited places, conspicuously displayed where every one may become thoroughly familiar with it, with penalties so severe that fear will insure its observance if decency and respect for one's fellow beings will not. Such a law would not be directed against men who smoke—and do anything—with a full sense of their individual responsibility. They do not need it, for such men do not wilfully or negligently jeopardize the lives or limbs of their fellow men. But for those who in their first few years in the "land of the free" mistake license for liberty, such a law is urgently necessary. It cannot be passed too soon, nor carry too severe penalties for violation.

The increase of death rate of people over forty is unduly worrying a lot of good people, but such increase is the natural result of the modern prolongation of life. We all must die some time, and if modern medicine saves us in childhood, we must necessarily swell the death rate later. In spite of the high death rate of infants, we

do save many more than we did fifty years ago, and the infectious diseases carry off far fewer older children than in former years.

Boys and girls of frail physique who have not sufficient vitality to carry them through a long life, are saved for thirty or forty years. We must therefore expect that with our lessened death rate, and prolongation of life, the death rate in ages over forty or fifty will constantly increase. It would be ideal to have all deaths after seventy, but that is a consummation of medical excellence unattainable, and always will be. There is of course no question that some men dying in the fifth or sixth decade of life, could have lived until the seventh if they had known soon enough what was injuring them. The present movement therefore calling attention to these avoidable dangers is bound to do great good, but will greatly increase the death rate in the seventh decade. We must remember that in former times when adversities carried off the weakest, a man of fifty who had survived the damages, was necessarily of strong resistant material, and he could live in a way that would be highly dangerous to the average man of fifty now-a-days. That is, the care which prolonged our lives in infancy and youth, must be continued in maturity and old age, or we perish.

Let us repeat, of every thousand deaths those under forty or fifty will furnish a steadily decreasing percentage, while older men supply the deficit.

A most regrettable situation has arisen that we are forced to refer to, much against our will. During the past few months we have been showered from all parts of the country, but mainly from the West, by copies of a publication whose chief mission seems to be to publish material that is never found in reputable publications. To our correspondents, friends and subscribers who have sent us copies of this magazine in good faith, with the object of keeping us posted concerning the course of events, we wish to take this opportunity of expressing our sincere appreciation. To those who have sent copies with the idea that AMERICAN MEDICINE was going to pass along such filth or engage in the "delightful" pastime of reprinting scandals, we can only say that we are pleased to believe that AMERICAN MEDICINE has a greater and far pleasanter mission. To those who have written in—and they are not a few—urging us to make this the opportunity for "exposing" the editor of the *J. A. M. A.* we want to say that AMERICAN MEDICINE does not engage in the "exposing" business, and we are not only particularly averse to "pulling chestnuts out of the fire" for any one, but we do not propose to engage in any unpleasant, unnecessary, and altogether degrading quarrels to satisfy anybody's personal animosity or dislike.

The foregoing is not said in a spirit of anger or ill feeling. We may have mistaken the zeal which prompted so many to urge us to print a mass of "unclean," nauseous material about the editor of the *J. A. M. A.* But whatever the actual motives that have been behind the advice and suggestions proffered us in connection with this unsavory topic—and we are willing to assume that they were disinterested—we want to take the opportunity to declare our policy and purpose once and for all, that our position may be clear to those who have sought to supply us with ammunition—with full and complete directions as to its use.

The publication referred to—let it be said at the outset—is not the kind to foster any very great respect or confidence. Its rather vulgar title—*Jim Jam Jems*—promised contents neither edifying nor instructive. Perusal of its pages showed at once the character of the journal and left no doubt as to the fundamental reasons for the bulk of the material presented. Unquestionably there are people who delight in such stuff—just as the buzzard has a well developed appetite for carrion—but it is too much to believe that clean minded people have the slightest desire for such filthy material even though served with a literary style or a facile pen. No, it was plainly evident that when a magazine like *Jim Jam Jems* undertook the "exposure" of high officials of the A. M. A. the reason was far from altruistic. Had the material in hand been a simple tale of malfeasance in office, incompetence, or dishonesty, it would never have been printed. But because of its particular character it fitted into the plan of the publication and was accordingly given all possible prominence.

Does anyone suppose for a moment that this vulgar, obscene magazine actually had the interests of the medical profession at heart and honestly aimed to supply the Trustees of the Association with information which had honorably come into its possession? Let no one make this mistake, and we do not hesitate a minute in saying that this so-called *exposé* would never have been printed but for its vulgar, lewd and scandalous character. Under these circumstances no decent person can have the slightest respect for such a publication and the tales it carries. It is outside the pale of decency and can hold no interest for any one—except the one it attacks. The man who is the subject of its onslaught cannot, unfortunately, ignore it, for no matter how little it means to the disinterested, it makes specific charges and statements that he—in spite of its vileness—cannot safely allow to go unchallenged.

We hold no brief for the gentleman attacked. He has not failed to direct the venom of his pen against AMERICAN MEDICINE and subject it—in company with many other independent medical journals—to treatment that has been as unjust as it has been uncalled for. We have no reason, therefore, for according him any special consideration or safeguarding his reputation in any way.

But as previously stated, AMERICAN MEDICINE has loftier purposes than spreading scandal or printing damning material against any one, even those who have shown a disposition to harm us if possible. We feel that we owe our readers something better than petty quarrels or expressions of animosity. So no unkind or vicious attack has sullied our pages, in spite of the advice that has been given us with the large amount of material identical in many respects to that which has recently appeared. Some people develop affidavits, some people purchase them, and some have them thrust upon them. Ours, it is needless to say were "thrust upon us." In spite, however, of the material that has been at our service for several years not one word has ever appeared in these pages. Many of our contemporaries have pursued a like course. Some have done differently and nothing in the foregoing implies the slightest criticism. If a journal's policy admitted, the material that has been common property has been a fair subject for discussion. But holding strongly to a policy opposed to controversy and personal attack, we have steadfastly refrained from printing articles, even from

some of our closest friends—men whom we deeply admire and respect—and in the face of accusations of cowardice, fear, lack of interest in the welfare of the profession, etc., etc. We hope, consequently, that those who have been urging us to enter the arena and engage in combat will understand at last why we have so steadfastly refused and followed "the even tenor of our way." *"One cannot handle pitch without getting badly smeared."*

The whole sordid affair as outlined by the material submitted to us was too dirty, too low and disreputable for any decent journal to print with the entirety that would be essential if once undertaken. We feel that *Jim Jam Jems* has shown pretty conclusively how nearly right we were. A publication of its character and evident purpose might glory in being the medium of spreading broadcast such foul and filthy stuff. But a clean purposeful medical journal dedicated to the best interests of the medical profession in general—and its readers in particular—is assuredly doing what is most in keeping with principle and decency by ignoring it entirely. Thus, no chance is offered of injuring someone who may possibly be innocent, the readers are not treated to degrading material, and the journal has the credit of having played no part in an affair not one single feature of which is helpful to any one.

In conclusion, we can only repeat that while this attack on an official of the A. M. A. can be very properly ignored by all decent people, in view of its character and source, no such happy course remains for the one attacked. No matter how low and despisable such a publication may be, or how little it may merit respect or credence, an attack made with the particularity of the one in question, can remain unanswered with but one conclusion. Vile as its source may be *such an attack makes specific accusations which will always stand as the probable truth unless refuted.* This is the terrible evil that unscrupulous publications can do; even though unreliable and irresponsible, their statements are accepted as facts if allowed to go unchallenged. This may be unfair, considering their character and known depravity, but it is the way things go.

In all sincerity, therefore, we hope the editor of the *J. A. M. A.* has taken steps to repudiate this vicious attack that has been made upon him. As the editor of the foremost medical publication in the world, he owes it to his colleagues to demand that a disinterested committee from the Trustees of the Association take up the charges made against him and dispose of them, once and for all. And although the gentleman in question has neglected no opportunity of doing us all the harm he could, we trust we are big enough and clean-minded enough to hope that he may be able to clear himself of everything that has been falsely laid at his door.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.

of AMERICAN MEDICINE, published monthly at Burlington, Vt., as required by the Act of August 24, 1912.

Managing Editor—H. EDWIN LEWIS, M. D., 57 W. 58th St., New York.

Business Manager—WM. T. HANSON, 1576 Bergen St., Brooklyn, N. Y.

Publishers—AMERICAN MEDICAL PUBLISHING CO., 84 William St., New York.

Owners—H. EDWIN LEWIS, M. D., 57 W. 58th St., New York City.
W. B. HOWE, Free Press Ass'n, Burlington, Vt.

Known bondholders, mortgagees, and other security holders, holding 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

H. EDWIN LEWIS,
Managing Editor.

Sworn to and subscribed before me this first day of July, 1913.

H. SCHUYLER CAMMANN,
Notary Public, Nassau County.

ORIGINAL ARTICLES.

THE PRODUCTION OF A SAFE MUNICIPAL MILK SUPPLY.

BY

GEORGE G. NASMITH, Ph. D.,

Director of Laboratories Department of Health, Toronto, Canada.

Milk is potentially the most dangerous food in general use. This is due to the fact that it is practically the only animal food which is eaten raw, and, because it is fluid and contains all the requisite organic material to support germ life, it is a veritable culture medium for bacterial growth. Furthermore milk is subject to so many handlings, frequently by people who have not the slightest regard for common cleanliness, that it is sure at some time to become infected with pathogenic disease germs. Milk is commonly contaminated at the farm with certain varieties of bacteria, which in large quantities may cause severe illness or death of the children who subsequently drink the contaminated milk. These dangerous germs, including the tubercle bacilli, come chiefly from the intestinal canal of the cow itself. It is obvious then that pure milk can only be produced from clean cows; and that in brief the whole secret of producing safe milk is the use of common cleanliness in the methods of production and handling from the moment the milk is drawn from the cow until it is used by the consumer, and furthermore that the milk must be maintained at a low temperature during the whole of this period.

The wholesomeness of the milk of a community depends upon many factors which for the sake of convenience may be placed under various headings.

The size of the community whether it be city, town or village is the first factor having an important bearing on the milk supply.

In the small town or village the milk is usually delivered to the consumer directly by the farmer or producer, and since this is usually within a few hours of the time the cows are milked, the time and temperature elements, which are responsible for the bacterial increase in older milk, play little part, and large bacterial counts are then due to

1. Dirty stables and dirty cows.
2. Dirty milkers.
3. Dirty and unsterilized milk pails and other utensils.
4. Water from polluted sources used for washing utensils and for adulterating the milk.

Dirt in milk is invariably associated with high bacteria counts. If cows are dirty—and they become dirty if stables are not kept constantly clean—some of this dirt is sure to gain access to the milk, from flanks, udders and tails. Dust blowing around the stable from hay and litter, and the dirt from clothes and hands of milkers also is certain to find its way into the milk.

The remedy for this is so simple that it hardly seems worth discussion. If the stables, cows, utensils and hands are kept clean, the milk must be clean. The use of the small mouthed milking pail, even where other conditions remain the same, is perhaps the greatest single factor in reducing the dirt content and bacteria count of the milk. The horizontal cross section of the mouth of this pail is less than 1/15 of the opening in the ordinary wide mouthed pail; consequently it is impossible for more than 1/15 of the dirt to fall into the milk.

All dairy herds and barns should be regularly inspected and the data obtained filed for reference. Obviously dirty herds and tubercular animals should invariably be excluded as sources of milk supply.

The proper filing of records is as important as the inspection itself for this is the data used to work from and for reference later on when memory cannot be relied upon. Where possible to obtain, frequent analyses of the milk as it is received should be made. It will be productive of not a little astonishment to find that the well is frequently resorted to make up any deficiency in quantity; it will also soon become apparent that the milk from a good many herd tests very low.

Examination of the individual cow's milk will quickly demonstrate to the producer which are his undesirable "robber cows" and usually he is quite willing to replace them with others which yield milk of better quality.

The producer should be notified at once of every failure to comply with the regulations. Many cases can be covered by regular typewritten forms which can be readily filled in by the stenographer, thereby saving much repetition in dictation.

In Toronto the retailer, wholesaler and producer are notified of each and every failure to comply with the regulations, whether it be deficiency of butter fat or total solids, excess of bacteria or dirt, watering, unsterilized cans and bottles, inefficiency of pasteurizers or any other feature. This not only educates the people handling milk as to what our requirements are but they learn very quickly that these requirements must all be lived up to and why. Thus when milk coming into the city is tested on arrival with the Wisconsin dirt tester, and the visible dirt filtered off by the little cotton disc is seen to be large in amount, the milk is dyed red with a harmless dye. A red label is pasted on the can and the milk returned to the farm accompanied by a duplicate dirt disc. This is followed by a letter explaining that dirt means animal excreta, that this in turn means large numbers of intestinal bacteria from the cows, and that these bacteria may be dangerous enough to cause disease and death of the children who drink such contaminated milk. The farmer becomes convinced of the power of the department to exclude his milk altogether but he is also given the logical reasons for the procedure. Furthermore, the returned can bearing the red label is put off the train at his home station, all the neighboring producers see it and the episode forms the chief subject of conversation of the neighborhood for that day. Naturally the producer responsible does not relish the publicity and as a rule he determines that this offense will not be repeated. If the producer does not come to time, his milk supply is excluded for good.

By such means those engaged in the milk trade are educated as to how milk should be produced and handled and it is really marvellous how quickly such a campaign coupled with an occasional demonstration of the power of the department will bring about results.

Shutting off the milk supply of an individual incapable of being reformed often makes the producers of a whole district brace up and improve in ways which would otherwise require much time and many letters.

Coupled with the educating of those handling the milk it is essential that a campaign be carried on to educate the

public as to the value and dangers of the milk supply. If the local press can be interested this problem is solved, for an interested reporter can pick up all sorts of facts about the control of the milk supply which, when well written, make interesting copy.

Bulletins and leaflets on various phases of the subject are invaluable and may be distributed through the school children to the homes; factories, colleges and other sources may also be made use of for this purpose. We publish a monthly bulletin in Toronto of which 42,000 copies are distributed in this way every month and no bulletin has yet been issued in which some paragraphs have not appeared in reference to the milk problem. As a result we have been able in two years to produce a public opinion which is demanding clean, pasteurized milk, and the demand is being met by the dairymen.

In conjunction with the educational campaign it is found necessary to compensate those willing to conform to the standards as well as to punish those who do not. In Toronto every three months each dairy is carefully scored, marks being given for every good feature in connection with the milk supply, and marks taken off for every deficiency or failure. The records for the previous three months are gone over and marks taken off for each and every offense. The names of those obtaining 80 marks out of a hundred are published in our bulletin, and the value of this was so apparent to the dairymen from the business point of view that there has been a rush to get into this class. In the first honor list there were 10 dairies; three months later there were 15 dairies and now after six months there are 32 on the honor roll. Since 20 marks are given for scientific pasteurization it is practically impossible for any dairyman to get his name upon the honor roll unless he installs a proper pasteurizing plant.

In like manner publicity methods are made use of whenever deemed advisable to correct conditions which other methods fail to correct. We have often to resort to the police court and force individuals to observe our regulations; the publicity associated with this and the prominence given it by the press is a much more potent force than any fine which may be imposed. A black list of excluded producers is also kept in the department for the information of the public and particularly the dairymen of the city.

As previously stated when the community becomes larger direct delivery of milk to the consumer becomes impossible. It then must be handled through retailers who buy the milk, hold it, perhaps filter, centrifuge, pasteurize it and deliver it to the consumer. The larger the community the farther afield does the milk come, the more handling it receives, the older it is before it reaches the consumer and therefore the more dangerous it becomes.

Consequently the machinery necessary to control the milk supply of a large community must be much more complicated and must operate smoothly. For the ensuring of a safe milk supply it is essential that supervision of the supply be maintained from the time the milk is drawn until it reaches the consumer. The milk vendor in Toronto is granted a license to sell milk only after a permit has been given by the Department of Health that his premises are satisfactory. If he fails to live up to the requirements of the Department his license is cancelled and he is then prosecuted

for selling milk without a license, so that the control of the retailers is quite a simple matter. All men who haul milk into the city must also take out a license, a feature which we have found of immense importance in controlling the adulteration of milk. That the law is being rigorously enforced may be gathered from the fact that where 232 dairies existed two years ago, exactly 100 have gone out of business, because they were unsatisfactory to us or could not meet our requirements.

The following are the observances demanded by the Department of Health of Toronto as essential for the safety and purity of the milk supply:

1. Washing and sterilization of all bottles and cans after use in city delivery, and of all cans before being returned to producers in the country.
2. Sealing of all empty returned cans.
3. Milking from cows with washed udders, in clean stables.
4. Milking into clean, preferably small-mouthed, sterilized pails, by clean milkers.
5. Immediate chilling of milk, and keeping it below 50 degrees F. in clean milk houses until collected.
6. Rapid delivery of the milk to the city, in cans sealed with some mark of identification on the seal.
7. Holding the milk below 50 degrees F. at the dairies in the city until pasteurized and bottled.
8. Using of utensils and machinery thoroughly washed with water and sterilized by steam.
9. Pasteurizing all milk to destroy pathogenic organisms, which, in spite of all precautions, will gain entrance to the milk.
10. Allowing only bottled milk to be sold and thereby obviating all possibility of contamination subsequent to pasteurization.

If all these precautions are observed the chance of the consumer getting unsafe milk is very remote, except in hotels, restaurants and boarding houses where the milk undergoes much handling after it is received.

Observances number three and four of course cannot be insisted upon, on account of the great number of producers to be inspected, but much can be done by educational methods as already outlined. The first part of number 6 appears at present to be a hopeless problem and we are looking forward to the time when we can establish central collecting stations in the country and bring milk to the city in refrigerator cars, for this is the only way we can overcome the difficulty of temperature and the resulting high bacteria counts with their attending dangers.

The sterilization of all utensils used in handling milk prevents cultures of bacteria from being returned to farmers to re-infect fresh milk. This is kept control of by rinsing the cans being returned with sterile water and testing the wash water for the bacteria count.

Sealing of the cans prevents contamination and adulteration in transit and enables us to identify the producer when necessary. It is also a guarantee that the can with seal intact contains the milk as it left the producer, and any examination whether chemical, bacteriological or physical may then be fairly charged against the producer.

The regulation preventing the sale of bulk milk eliminates a tremendous amount of adulteration and contamination. In Toronto it has removed the dangerous element from 1200 places where milk is sold, each of which places was formerly a potential source of an epidemic of some contagious disease.

In the smaller community inspection is worth a great deal. In the larger community inspection of the dairy farm is of little value except where backed up by a

rigid system of control in the community itself. In the larger community the milk itself must be the criterion of conditions existing on the farm. The data as to analyses and examinations of the milk, where the municipal control is complete, becomes most valuable to the veterinary inspector working in the country and when he goes to inspect a dairy farm he is already armed with frequently quite illuminating information. Until the city organization in Toronto became complete veterinary inspection alone accomplished very little, while since that time it has proved of real value, because the men are now able to work backward intelligently to the farms from specific data already obtained from examination of the milk supplies of those farms.

With all kinds of inspection and regulation and in spite of every effort, milk will at times come into the municipality grossly contaminated. It will receive occasionally an extra load of dirt, and with this dirt increased quantities of bacteria; it will be contaminated with pathogenic organisms directly from human beings or from wells; it will become warm in transit, the initial bacteria count will multiply many thousand fold and the danger will then become correspondingly greater.

Milk is the only uncooked animal food we eat and because it is an ideal culture media for bacteria to grow in, it is frequently a dangerous food material. The only way that milk can be rendered safe is by pasteurizing it according to the method whereby it is heated to 140 degrees to 150 degrees F. and held at that temperature for 20-30 minutes. In this way all pathogenic germs are destroyed, the milk is rendered perfectly safe and its digestibility is not affected. In Toronto in the Sick Children's Hospital where scientifically pasteurized milk was substituted for raw milk, all diarrheal diseases immediately disappeared and this has been the general experience in the municipality.

It was argued at one time that milk properly pasteurized was dangerous because the lactic acid bacilli were destroyed and the bacteria producing putrefaction in milk gained the ascendancy.

It is true that in laboratory experiments this often does happen, but in actual practice it rarely happens. In Toronto where we insist on a removal of 95% of the bacteria as a test of the efficiency of pasteurizers, hundreds of pasteurized samples have been taken from delivery wagons and kept in the laboratory. In very rare instances only does a sample become putrid, the milk practically always undergoing normal souring. This indicates that though 95% to 98% of all the bacteria are destroyed by pasteurization there is a sufficiently large number of the lactic acid organisms left to bring about normal souring. The last objection to pasteurization in our opinion has thereby been removed and we expect soon to make the process compulsory. Where less than 45% of the total milk supply of this city was pasteurized a year ago we now have 75% of the milk scientifically pasteurized, and even without legal action we expect that this will increase to 90% by the end of the year.

The problem of getting rid of tuberculosis in cattle we believe does not depend on tuberculin testing and getting rid of the reactors. That appears to be only a shallow conception of the solution of the problem, which is one of education. The government by a comprehensive scheme of education through lectures, institutes, agri-

cultural colleges, Health departments and other agencies must show the farmer that though Tuberculosis is a wide spread disease among cattle it can be overcome; that the basis of the whole problem is one of sanitation which is common cleanliness; that since the cow is a cud chewer most of the Tubercle bacilli are swallowed, pass through the intestinal canal of the cow and reappear in the excreta; that if this excreta is kept out of the milk, or the milk pasteurized, that these Tubercle bacilli will be destroyed; and that if the calves are immediately removed from the herd to separate, clean, airy quarters and fed on pasteurized milk, they cannot develop Tuberculosis because there is no infecting agent. In short it would only require one decade of honest conscientious effort to evolve herds of Tuberculosis-free cattle under such conditions; whereas even if all reactors were removed from the present herds, some of the non-reacting and apparently Tuberculosis-free cattle would ultimately come down with the disease, because the conditions favoring the disease and the infecting agent would still persist in some localities and in some animals.

To obtain a pure, safe supply means an active, aggressive organization, always at work, for the difficulties encountered never cease. From the standpoint of vital statistics it is difficult to demonstrate the value of the work being done, but specific cases of epidemics traceable to milk arise frequently enough to demonstrate its latent possibilities. Looking at it from the commercial standpoint, milk inspection pays the community. In Toronto the water used to adulterate milk which was sold to citizens at the rate of 9c a quart, and which we were able to eliminate in one year, amounted to $300,000, or was a direct annual tax of 75c for each head of population. Since that time we have succeeded in raising the standard of butter fat in the milk another one half per cent. so that people are now getting a much more valuable food for the same money. We presume also that our efforts to obtain cleaner milk though not yet demonstrable by statistical methods, must be bringing about a material reduction in the infant mortality.

TUBERCULOSIS OF BONES AND JOINTS.

BY

CLARENCE L. STARR, M. B.,
Surgeon-in-Chief, Hospital for Sick Children, Toronto, and Associate Professor of Clinical Surgery, University of Toronto.

Tuberculosis of bone is preeminently a disease of childhood, and it is as such that the writer wishes to deal with it. Because of the density of bone tissue, it is often forgotten that it is still subject to the same infections as other structures. Obviously the compact tissue, on account of its lessened vascularity, is not so frequently invaded as the non-vascular cancellous tissue. Tuberculosis of bone must be considered as affecting bone similarly to other tissues of the body. In the writer's experience, the infection starts almost constantly in the cancellous tissue, and that in the epiphysis near the epiphyseal line.

Tuberculosis of the diaphysis does occur, but in this country, at least, most rarely, and certainly not with the frequency seen in Scotland, especially as noted by Mr. Harold Stiles.

In the past five years only two cases of diaphyseal tuberculosis have occurred in the

Children's Hospital here. In practically all cases of this disease in childhood a direct source of infection can be traced, either to the parents or to intimate associates. This being the case, it is scarcely necessary to remind surgeons that they should join hands with medical men and philanthropists in forwarding all preventive measures to secure the ultmate eradication of this dread scourge. A very small percentage of tuberculous patients are suffering from tuberculosis of bones, yet any marked diminution of the whole number of tuberculous patients means a corresponding lessening in the number of sufferers from bone and joint lesions.

In view of the very radical procedures advocated by some surgeons, especially by Mr. Harold Stiles in Edinburgh, it seems wise to emphasize the fact that no reasonable argument has been brought forward to show that bone tuberculosis is not amenable to the same methods of treatment that are adopted in other tuberculous lesions. It also remains to be proved that after such radical measures there is any saving of time during which the patient is under treatment or that the functional results are any better.

Another general statement needs to be emphasized, especially in this country, and that is: that the tubercular lesions are in the main largely curable, and most patients get well with a greater or lesser interference with the function of the extremity, depending largely on the point as to how early and vigorous has been the mode of treatment instituted.

A great many practitioners feel that once a bone tuberculosis has set in, the joint is doomed and even the patient has slight prospect of recovery. The contrary is the true view. Nearly all deaths in tuberculous lesions are from generalized tuberculosis or from meningitis or from mixed infections.

Accompanying the mixed infections one finds frequently amyloid changes in the viscera. In the writer's opinion these changes are never found aside from mixed infections. In the Children's Hospital here, mixed infections, even in sinus cases are rare, since the general rule has been insisted upon that no sinus shall be probed, or flushed, or any form drain introduced.

Etiology.—The relation of carious disease of bone to lung affections and strumous diseases generally, noted even by Hippocrates, and accurately described by Pott, was cleared up by the discovery of the tubercle bacillus of Koch as the common cause of both.

The mode of entrance to the bone has always been a debatable point, and of recent years the question as to whether the human or bovine bacillus is the most frequent cause is discussed very freely. There seems no doubt that the bacilli gain entrance to the bone through the blood stream. The blood stream is probably fed from breaking down lymph nodes, so that one can say, as a rule, that the bone affections are secondary to some other focus in the body, usually in the glands.

The opinion of the English writers seems to be fairly general, that the primary infection is from the mesenteric glands, and that the infective agent is usually the bovine bacillus. This is certainly not our experience in this country. Glandular enlargement of the mesenteric gland, with or without tubercular peritonitis, is in children in our experience not common as compared with the number of cases of infection of the cervical, bronchial and mediastinal glands. Also a careful study of the morphological character of the bacilli from a large number

of abscesses and broken down tissues reveals very few of the bovine type. Thus our experience would suggest that the bulk of infections take place through the respiratory tract, the tonsils being responsible for a fair proportion of these, and the infections from tuberculous milk or meat are uncommon.

The part played by trauma in the determining of the local bone focus is an important one. The common history of these cases is that three or four weeks after an injury of some severity, there is commencing limitation of motion with limp or other disability. This is a reasonable hypothesis, because with the injury there naturally will be a lessened resistance to any infection, and with the increased blood supply an increased number of the tubercle bacilli find an entrance. This theory is supported also by the fact that the localities that are most subject to injury are the most susceptible to disease. We find the greatest number of cases involving the spine, next the hips, knees, and ankles, and, much less frequently, the shoulders, elbow and wrist.

Pathology.—The description of the pathological process in caries of the spine as presented by Percival Pott in 1760, is almost as accurate as is written today, and makes most interesting reading.

The entrance of the tubercle into the cancellous tissue of the bone results in the formation of tubercle similar to that in the soft tissues. The focus of disease is practically always in the epiphysis, this being in marked contrast to the acute infections of bone, which practically always start on the diaphyseal side of the epiphyseal line. The question as to whether the disease starts primarily in the bone or in the synovial tissue, has been discussed for years. That there are some cases of undoubted primary synovial disease is true, but that there is any large number starting in the synovial membrane is very dubious. Nicholls of Boston in a very large series of examinations, determined to his own satisfaction, that practically all of them started in the bone. The disease extends inward in the cancellous tissue of the bone, undermining the articular cartilage, and the cartilage ultimately becomes loosened and disintegrated. When the focus of the disease starts close to the margin of the bone, it extends readily to the synovial membrane, and this structure becomes thickened, elevated into ridges of the villous type, and is, in the end, destroyed. The cartilaginous structures are the last to give way, as fibrous tissue generally is very resistant to tubercle.

The ligaments, in extensive disease of the joints soften, and the joint becomes very unstable. The breaking down of the tissues results in a large amount of detritus, and the chemical changes which take place as a result of the action of the toxins give us the bulk of the fluid matter found in these cavities. There are a great many dead leucocytes, but not nearly the quantity that is found in the acute infections. A rather interesting feature in these diseases as affecting bones is the stimulation which takes place very frequently at the epiphyseal line. This is noted especially in the disease of the knee joint, and very few text books call attention to the fact.

It is well known that extending beyond the tuberculous focus is an extended zone of round-celled infiltration. This hyperemia when it extends to the epiphyseal line results in the stimulation of growth, and we get a marked lengthening of the bone in consequence. As that stimulus is evenly distributed along the epiphyseal line, the growth will be even throughout. If, on the

other hand, the stimulus is marked on one side only, the growth takes place on the corresponding side, and a deformity results—a knock-knee in one case, and a bow in the other. With the rapid growth at the epiphysis a half or even three-quarters of an inch increase in length is found in the affected extremity. The spontaneous cure of these diseased foci is by a fibrosis or a calcification of the structures.

Clinical symptoms.—The invasion of the bone in the early stage may give very few symptoms: possibly the earliest sign noted is that the patient tires more easily than usual. In the case of the lower extremity, very soon a limp is noted—this limp being an unconscious effort to save the diseased joint from weight-bearing. Examination at this time will probably show that there is some limitation of motion resulting from the muscular spasm. In a child, a persistent limp with some limitation of movement of a joint is very suggestive of tuberculous disease. Without muscular spasm one can feel fairly sure that there is no joint involvement. Following this, one finds rather rapidly the atrophy of muscle structure, and later in the disease possibly some pain. It should be emphasized that the pain is a very inconstant symptom, and only appears in the later stages of the disease, when the articular surface has been invaded. The pain may be of two varieties: the referred pain—such as one finds in Pott's Disease of the spine where the pressure on the nerves by the thickened dura at the intervertebral notch produces pain at the periphery—or in the case of hip joint disease, where the irritation of the nerve at the hip produces pain at the knee.

On the other hand, the pain may be from the acute muscular spasm, found chiefly at night—as seen in the night cry of hip joint diseases.

One finds fairly commonly also, abscesses in various regions, depending upon the location of the disease, but this is a complication of the disease rather than a common symptom.

Treatment.—In the treatment of bone and joint tuberculosis, we too frequently neglect the plan of treatment adopted by our medical confreres in the treatment of tuberculous disease elsewhere. I should like to emphasize that the main feature of the treatment of disease of the bones and joints should be directed towards increasing the resistance of the individual to the tubercle. There is no doubt that there is a marked difference in the virulence of the organism in different individuals. There is no doubt also that certain individuals have a greater resistance to the organism than others. It is a well established fact that an individual with a multi-articular disease will not have as destructive a process in his joints as one suffering from a non-articular disease.

The patient should be given all the advantages of fresh air, sunshine, the best hygienic surroundings, and good food, as in the treatment of the disease elsewhere. In the treatment of the local condition, we cannot do better than to follow the leadings of nature. We see in all cases an unconscious effort to protect the joint from weight-bearing and from motion. In the spine—no matter how young the child is—he walks with a hyper-erect attitude, the back being over-extended, the abdomen correspondingly prominent—thus protecting the diseased bodies from weight-bearing, throwing the weight back on the articular processes. He walks very guarded-

ly with the muscles in a condition of marked spasm. This successfully limits the movement of the spine. In the hip, knee, or ankle, one sees a similar action. The child carries the weight on the affected limb for a very much shorter time than on the sound one, thus producing an irregular gait, which is noted as a limp. In standing, the patient will always stand on the sound limb. The muscular spasm here also limits the movement of the affected joint.

In copying this natural effort at a cure, one can very effectually relieve the weight-bearing—say in the spine—by keeping the child recumbent, preferably on a gas pipe frame bound upward at the point corresponding with the diseased area. If the child is strapped to such a frame in "papoose" form, this also limits the movement. In the erect attitude a support of plaster of Paris or steel may be applied, which keeps the spine hyper-erect, and thus accomplishes the purposes of limiting the movement and at the same time allowing the child the additional advantages of exercise.

In the lower extremity, splints of various forms may be used so that the patient may get about and still bear no weight upon the affected limb, and have it splinted so as to prevent movement at the same time.

In carrying out any attempt at the local immobilization of the limb, one has constantly to bear in mind the fact that too long fixation results in marked atrophy of the bone structure, as well as in soft structure. The possibilities of treatment by tuberculin are still in the future, but there seems no doubt that if it is efficacious in the diseases of the soft structure, it ought to be equally applicable in the bone diseases.

Abscess.—Abscesses will appear in from 40 to 50 per cent. of cases of tubercle. Our method of treatment of these cases is to treat actual disease, whether it is of the spine or hip, and keep the abscesses under observation. A fair proportion of them disappear, and we give them every opportunity so to do. We never open acute abscesses if we can avoid it. If the abscess, in spite of the care of the bone disease, steadily and gradually increases so that there is a probability of its invading the skin and bursting, we first aspirate it through healthy tissue. This is repeated on several occasions if necessary. In the older cases, or if in spite of the aspiration the abscesses recur, we open the abscesses through the least dependent part, and again through healthy tissue, and scrape out the granulation tissue membrane, after evacuating the contents of the abscess, wiping the whole surface with iodoform gauze used as a brush on the end of a pair of dressing forceps. By twisting the gauze one can usually incorporate most of the remaining debris and granulation tissue in the meshes of the gauze, and thus remove it all.

We do not flush the cavity at all, nor do we inject the iodoform emulsion, or any antiseptic.

In the great majority of cases the wound heals by primary union, and seldom recurs. If it does recur, the same process is repeated.

Thyroid insufficiency is believed to cause enuresis nocturna. Give the thyroid in small doses, trying atropine to full effect first.

THE DIAGNOSIS AND TREATMENT OF ECLAMPSIA.

BY

GEO. W. KOSMAK, M. D.,

Attending Surgeon, Lying-In Hospital, New York City.

Diagnosis.— In a disease of such varied etiological and clinical features the diagnosis must necessarily be made with caution and exactitude. We are very apt to concentrate our attention on the occurrence of a convulsive seizure as the principal sign in formulating a diagnosis of this unfortunate complication of pregnancy. It would be much better for us to acquire a definite knowledge and understanding of the toxemias of pregnancy as clinical entities and then to treat the patient rather than the disease. We have learned to do this in other conditions such as pneumonia, nephritis, heart disease, etc., and there seems to be no valid reason why we should not do the same for this complication of pregnancy which we popularly call eclampsia. It would undoubtedly be an advantage to drop the latter entirely as we would then be led to a more certain diagnosis of the toxemia of pregnancy from other impending signs and symptoms.

As the prophylaxis of this disease, like that of a great many others is of such signal importance, it becomes necessary to recognize those special features which usher in the prodromal stages. These symptoms are usually characterized by disturbances that may be slight enough to be interpreted by the patient as of a digestive origin or again they are simply described under the general caption of "not feeling well." Headaches, slight nausea, dizziness and visual disturbances which come on at any period during the last two months of pregnancy, should be looked upon as danger signs and every patient warned by her physician, what the significance of these symptoms is. Proper treatment immediately instituted will usually result in cutting short the trouble but we must not be satisfied to rest in any case where these disturbances have once been present, as a recurrence is very likely. Unfortunately we do not as a rule meet with the disease until it has advanced beyond the bounds where these are noted. Usually a convulsive seizure or state of coma constitutes the symptom complex in which we ordinarily see the patient. When this occurs during pregnancy it can ordinarily be interpreted as due to the presence of a toxic state rather than anything else. Yet we must consider at the same time convulsions due to other causes, including epilepsy, cerebral irritation due to tumors or inflammatory states, or the presence of a uremia. The former two need not concern us particularly as their recognition is comparatively easy from a previous history of the case. As regards uremia we may be in doubt, however, as far as the treatment is concerned; it would be the same in both cases except that in the presence of a uremia we ought to pay less attention to delivery than in eclampsia. As a matter of fact if we are called to a patient in pregnancy or labor who presents a convulsive seizure, particularly if without any previous warnings, it may be assumed that we are dealing with a convulsion that is due to the presence of a toxemia of pregnancy. In many cases the diagnosis may be confirmed by boiling the urine or treating it with nitric acid, when the well marked reaction for albumin will serve to indicate the presence of a true "eclampsia." Although this is not an infallible sign it will serve in most instances to differentiate the condition from convulsions due to hysteria,

epilepsy, etc. Under the circumstances in which we see the case a more refined urinalysis is of course impossible, but we must not forget that the albumin does not appear in some of these cases until a considerable time after the convulsion. Another class of cases to which we must pay particular attention is that in whom a toxemia is present without convulsions. This is a group to which increasing attention is now given and which often constitutes one of the most serious varieties of the condition with which we have to deal.

The pathological lesions are precisely the same as in those women who present severe and extensive convulsions. The diagnosis here is often a difficult one to make, although on inquiry we are usually favored with a recital of certain prodromal symptoms including headache, dizziness, visual disturbances and general malaise.

Treatment.—The treatment of eclampsia must be divided according to the phase of the condition which may happen to present itself in the individual patient. We will consider first the handling of those cases which are marked by a convulsive seizure, as this is the type which we meet with most frequently and which in the eyes of both the laity and the profession demand immediate and radical consideration. As we are not yet entirely clear as to the exact etiological factors which underlie these toxemias it is not to be wondered at that a great deal of divergence of opinion exists as to the proper treatment of the disease. Thus we meet with the most extreme views on both the conservative and the radical sides of the question. One class of obstetricians favors immediate delivery by the most radical operative measures and the other side advocates sedative and eliminatory treatment as the sole necessity. Good results seem to have attended both methods of treatment as shown by the statistics adduced by each. There is one point in the treatment of this type of eclampsia which cannot be gainsaid and that is that every patient who presents a convulsive seizure should be sent to a hospital for further treatment whenever this is possible. In view of the extended facilities offered by maternity services in our larger cities this can usually be carried out, but as the fatal issue may come on very rapidly, something should be done by the physician who may be called in to tide the patient over until her removal can be accomplished. My personal experience and views lead me to believe that immediate delivery by radical measures is not invariably necessary and that much can be done by other means at our command to relieve the patient.

Eliminative and sedative measures can be applied as a general thing in every household. As the routine treatment in a case of a toxemia of pregnancy in the later months accompanied by convulsions, I would suggest the immediate injection of a quarter of a grain of morphine before anything else is done. We know that the liability to convulsions from even slight external irritations is marked in these patients and by putting them immediately in a condition of enforced quiet we can proceed with the other necessary measures without unduly arousing them. After the morphine has begun to exert its effects, the patient's clothing should be removed and certain eliminatory measures proceeded with. These include the administration of cathartics and enemas together with the abstraction of a certain quantity of blood in suitable cases. I want to extend a warning on this point against the indiscriminate use of chloroform in eclamp-

tic convulsions although the dangerous effects of this drug have now become so generally recognized that this warning may seem superfluous. There is no doubt that a great many deaths have occurred as the result of late chloroform poisoning in such instances. A soapsuds enema repeated if necessary until an evacuation of the bowels has occurred is one of the first things to be done, followed by the administration of a concentrated saline cathartic where the patient can swallow or the application of a drop of croton oil to the back of the tongue. Personally I do not favor the latter as the oil cannot always be readily procured and its administration is always accompanied by some difficulty. Elimination from the skin is favored by wrapping the patient in a blanket wrung out in hot water and keeping her in the same until perspiration has become free. These packs may be repeated at intervals of every two or three hours as the case demands. If the proper indications are present at least 500 cc. of blood may be abstracted from a vein in the arm and to this loss of blood if it occurs during the course of an operative delivery may, I think, be ascribed in large part the good results of the latter. Dilution of the blood stream may be accomplished by colonic irrigations with normal sugar solution when this is possible and if done, not less than four gallons at a temperature of 115 degrees should be employed for this purpose. The irrigation may follow or precede hot pack and is usually accomplished without difficulty, as the necessary apparatus can ordinarily be had in the average household or secured from the nearest druggist. Irrigations should not be administered where considerable edema is present as it is not advisable to introduce any more fluid until what is already there has been taken care of. So that in such cases this measure may be delayed until after free perspiration has been secured by means of a hot pack. After the irrigation has been completed, from thirty to forty grains of chloral dissolved in water may be administered by rectum. But if the patient can swallow, fifteen to twenty grains may be given by mouth. Washing out the stomach in these patients may be resorted to if the physician is sufficiently skilled but will not always be found a simple matter in the semi-conscious condition in which we find most of these patients. At some time during these procedures a vaginal examination should be carefully made and the condition of the cervix determined. As a general thing an eclamptic attack comes on between the seventh and ninth month and evidence of labor is often absent but as the latter process is one of the natural results of eclampsia, efforts directed to the induction of the same are often surprisingly successful if the cervix is soft and dilated beyond two fingers, the membranes ruptured, full dilatation secured and the child extracted by version. This relief from intra-abdominal tension seems to reduce the tendency to convulsion in many cases, but we are rarely fortunate enough to meet with a cervix in which dilatation is possible without a more extended procedure. I believe, however, that in many instances we can safely resort to gradual dilatation by the Harris method even if this takes an hour or more, in those cases where we cannot send the patient to a hospital and are compelled to rely on our own resources. If the convulsions are controlled and the elimination is taken care of there is no reason why an hour or more should not be taken to properly dilate the cervix and complete delivery by forceps or version as

conditions may indicate. Vaginal Caesarean section has been advised as a rapid means of delivery in such cases but I cannot be made to believe that this procedure should be conducted outside of the hospital and by any but those skilled in the operation as the procedure is not as simple as we are led to believe by its enthusiastic advocates. Where the case is one of milder degree and under control, dilatation of the cervix may sometimes be secured by the insertion of rubber bags.

The high tension pulse which we usually meet with in these women is ordinarily regarded as a symptom which requires energetic treatment and veratrum viride and nitroglycerin are the drugs most commonly advocated for this purpose. The former has been so generally used in this country that many consider it an absolute necessity. But careful observation of its effects has shown that its use is accompanied by some danger, as the depressing effects on the pulse are cumulative and cannot be controlled. Nitroglycerin on the other hand is much more evanescent in its effects and may be given quite safely in doses of one-fiftieth of a grain every twenty to thirty minutes until the pulse tension begins to diminish, when it may be employed at longer intervals. Attention may be called to the fact that the diaphoretic and diuretic measures previously referred to will do much as aids in reducing the arterial tension and this is likewise effected by the sedative drugs already advised. Regarding the radical operative treatment in such cases it seems that in view of the excellent results which have resulted from purely conservative or a combination of conservative with operative measures, that we should be less inclined to depend entirely on methods which are more or less strictly surgical in character. I refer particularly to the tendency to deliver women presenting convulsive seizures by vaginal or abdominal Caesarean section in the absence of other indications. In cases at or near term with an elongated cervix, a large fetal head which does not manifest any tendency to engagement, then an abdominal Caesarean section seems to me to offer a better chance for the mother and child than any other method of radical treatment. In a case at the seventh month, however, which has been accepted by many as the proper indication for vaginal Caesarean section, I believe that we should proceed more cautiously as it is not essential at this time to extend the same consideration to the value of the child's life as later on. Even if successfully delivered such children frequently are seized with convulsions during the first fews days' post-partum, or are so asphyxiated that they do not survive their delivery more than a few hours. The desire to get rid of the fetus and placenta at any cost is hardly a rational method of procedure, as the toxins of the disease whatever their nature, are already circulating in the blood and tissues and will continue to circulate for some time after the delivery.

Since the toxemias of pregnancy are better understood we have become aware that they may exist and go on to a fatal issue without the presence of convulsions and it is therefore opportune to refer at this point to the treatment of such cases. These women may or may not have prodromal symptoms but often pass directly into the condition of deep coma which resembles closely that associated with an ordinary uremia and which, if it ends fatally, will be found accompanied by the same pathological lesions met with in the classical cases that present convulsions. The treatment of

eclampsia without convulsion is practically the same as that of the other variety and we must exercise just as great caution in such cases as in those which are apparently of a much severer type.

I have not made any reference to the prophylactic treatment of the toxemias of pregnancy although this is a subject of equally great importance as that which we have under discussion, but I merely want to call attention to the necessity of observing these prodromal symptoms in pregnant women with a greater degree of care. We should warn our patients that the appearance of headaches, visual disturbances, nausea, malaise and similar manifestations of a toxemic state, are to be immediately reported to their physician who can then in most instances inaugurate a scheme of diet and medication which will relieve them and carry them to term. Cases of impending or actual eclampsia should be sent to the hospital, if possible, as the method of treatment which I have outlined can be accomplished with better results under such circumstances. The preliminary measures which I have referred to may, however, be instituted in every case and will often be sufficient to turn the balance in favor of our patient even if it is decided to send her to a hospital for further treatment. Not every case of eclampsia needs an immediate radical operative delivery, but there is no condition of pregnancy in which expert advice and assistance is more needed than in these women.

In conclusion I want to call attention again to the necessity for a proper acquaintance with all the manifestations of a toxemia of pregnancy and for a plea that we consider the disease as such, which means that not one symptom should dictate our method of treatment, but that the patient should be judged and handled as an individual. Convulsions are by no means the only symptom although their general prevalence has really served to give the disease its name. Convulsions are but a single manifestation and do not require any special treatment. Best results have been obtained by men who are ready to resort to any or all the various procedures, both prophylactic and curative, which the individual case may demand. Although we are not yet clear as to the precise etiological factors underlying the condition, sufficient advance has been made to allow us to give a much more favorable prognosis in the individual cases than formerly.

SUMMARY.

1. The diagnosis of the toxemias of pregnancy should be made with certainty in every case, especially in the presence of convulsions.
2. The treatment of this complication of pregnancy should be governed by the signs and symptoms presented by the individual patient. Thus far no specific therapeutic measure has been found.
3. When labor is imminent, especially at term, it may be completed by rupture of the membranes, manual dilatation of the cervix, version, or forceps, unless some indication is present for a more radical operative delivery. If the patient is not in labor or if she is not further than seven or eight months along in her pregnancy, conservative, mainly sedative and eliminatory measures, should always be instituted before resorting to any radical operative procedures.
4. The presence of a single convulsion should never be accepted as the criterion for radical surgical interference.

23 East Ninety-third Street.

A biliary fistula with patent cystic and common ducts may be used as a means of introducing medicaments or fluids into the bile tract or upper bowel.—*Am. Jour. of Surg.*

A SHORT RESUME OF OUR PRESENT KNOWLEDGE CONCERNING THE PATHOLOGY AND ETIOLOGY OF ECLAMPSIA.[1]

BY

ROBERT T. FRANK, A. M., M. D.,
New York City.

Adjunct Gynecologist, Mt. Sinai Hospital.

I have been asked to present to you tonight the pathology and etiology of eclampsia, and the theoretical views based upon these findings. Concerning the pathology there is no uncertainty, because at autopsy definite lesions are regularly found. When we turn to the etiology, however, we are in the position of those who tried, before the discovery of microorganisms, to fathom the causes which produced tuberculosis, puerperal fever or malaria. In other words we are in the dark, and at the mercy of any plausible theoretician who gains our ear. Let us, therefore, start on solid ground, and begin by considering the pathology of the disease.

Classification.— The group of cases termed eclamptic are typified by women, who during their pregnancy, during labor or in the puerperium develop severe constitutional symptoms usually described as toxic, and suffer from general convulsions. These are the typical cases. *Eclampsia without convulsions,* occurs occasionally, and can be recognized with certainty only by the pathognomonic post-mortem lesions. Conditions termed pernicious vomiting in the early months, toxemia of pregnancy, and acute yellow atrophy chiefly in the fifth to seventh months in parturient women show many, if not all of the changes noted in the typical eclamptic, and until the cause of these diseases is discovered, cannot be sharply differentiated from one another, and may, in the present state of our knowledge, with justice be considered as different clinical types of the same disease.

Pathology.— The liver in eclampsia shows the most regular and typical changes. Grossly a fatty appearance with hemorrhages varying from pin-point size to large foci are noted. On microscopical examination necrotic areas are distinguished, marked by thrombi within the smaller interlobular portal vessels. The necrotic areas which are usually central, consist of more or less necrotic liver cells, the better preserved ones loaded with fat, the dead cells represented by formless masses. The boundaries of the diseased foci may be hemorrhagic or anemic, depending largely upon accidental conditions of circulation due to the thrombosis.

The kidneys almost without exception, show cloudy swelling and acute fatty degeneration. Minute thrombi in the glomeruli and smaller arteries and veins are common. Dilatation of one or both ureters is not unusual, but this change is noted with almost equal frequency in normal pregnancy.

The convolutions of the brain are flattened and edematous. Minute or larger hemorrhages may be found; and some of these may be large enough to account for symptoms during life. The brain as a whole may be congested or anemic.

The lungs are almost always congested and edematous; probably due to terminal conditions referable to the mode of death. Thrombi and emboli consisting of fibrin, liver, placental fat or bone marrow cells are noted in the lungs as well as in the liver. These emboli, however, are also seen in other diseases and in normal pregnancy

[1]Read by invitation before the Eastern Medical Society of New York, April 11th, 1913.

(Pels-Leusden). Their greater number in eclampsia is accounted for by the severe exertion resulting from the general convulsions.

The heart shows marked fatty changes and punctate hemorrhages. The blood within its cavities does not clot readily.

The fetus of an eclamptic mother may show identical lesions in its organs.

These are the main findings noted at autopsy. Summarized they consist of multiple capillary thrombosis throughout the organs, which, when combined with focal necroses in the liver, and multiple hemorrhages justify the post-mortem diagnosis of eclampsia.

The interpretation of these lesions has been various, but only one indisputable fact can be deduced from them. They are due to some circulating poison, because similar, though not identical changes, are occasioned by widely varying agents, for instance by the simplest mineral substances such as phosphorus, by simple organic combinations like chloroform and chloral, and by large molecular organic complexes, such as bacterial toxines. In eclampsia, just as in other diseases the vulnerability of some one organ in a given individual determines the development of the most striking symptom, dominates the clinical picture, and thus focuses our attention upon a single type. In some cases the renal disturbance is exaggerated, showing intense albuminuria; in others the hepatic lesions produce a picture similar to acute yellow atrophy of the liver; in still others convulsion after convulsion shows extreme irritability of cerebral centres and spinal cord as in strychnine poisoning or tetanus; and finally cases marked by collapse, deep coma and widespread hemorrhages, closely imitate the profound systemic poisoning commonly associated with rapid bacterial sepsis. Is it surprising that with only the above mentioned firm pathological data to build upon, so many and various explanations for the cause of eclampsia have been offered?

Intra vitam Changes.—So far I have only dwelt upon the post-mortem findings. Certain pathological changes, determinable during life, also require mention.

Most noteworthy are the blood changes. A polynuclear leucocytosis, which may reach high figures (30,000-40,000) exists; an increase in coagulability of the blood, due to a diminution of the antithrombin (the anticoagulating agent) and higher percentage of fibrin ferment is marked; and an increase of viscosity—instead of a hydremia as was formerly believed—is also notable.

The urinary findings are less regular than was supposed. In typical cases diminution in quantity or suppression, a variable amount of albumen and numerous casts are the rule. The changes in urea, ammonia, total or other nitrogen are inconstant, as other speakers will show; signs of acidosis are not often found; leucin and tyrosin merely proclaim profound liver changes. In other words, the usual laboratory tests, though not without value, do not foretell threatened eclampsia with precision, and do not always show the degree of intoxication after the disease has developed (Murlin and Bailey).

Theories.— I shall not attempt to inflict upon you a detailed account of the supposed causes of the disease. The causes assigned have varied with the degree of knowledge possessed at a given time by the medical profession, and have closely corresponded to the "problems of the day."

By dividing the various theories into the groups into which they naturally fall, I may hope to present them to you more concisely and clearly.

A mechanical basis includes the earlier theories of ureteral obstruction with damming back of the urine and resulting uremia, similar to that in bilateral stone (Meigs). Under this head would also fall the Traube Rosenstein theory of increased aortic pressure with consequent brain hyperemia or anemia.

A purely chemical explanation was offered by those who found an excess of lactic acid (Zweifel), ammonium carbonate and carbamic acid in the blood. These chemical agents were regarded as the poison producing the symptoms.

The bacteria isolated have all been shown to be nonspecific accidental contaminations or terminal infections.

Disturbances of separate organs of the body have been singled out as the cause of eclampsia.

1. The instability of the *nervous system* always present in gravidity has been mentioned by some (Ahlfeld) and due to this spasm of the vessels is supposed to develop (Zangemeister).

2. *The renal theories* presupposed an injury to the kidneys due either to preceding nephritis, or to overwork resulting from the metabolic needs of the fetus. Under this head would also fall the theory of autointoxication from retained waste (Bouchard).

3. Dienst has ascribed the cause to *excessive destruction of leucocytes* with liberation of large quantities of fibrin ferment, an exaggeration of the normal leucocytosis of pregnancy preceding the onset.

4. *Hepatic insufficiency* has been incorporated into almost all the later theories advanced. Most of the investigators assume that distinct liver changes take place in every pregnancy (Jurgens), and that under given conditions arising in the liver itself or inaugurated by the fetus, placenta or intestine, an increase of the hepatic disturbance occurs (Hofbauer).

In the last 25 years the opinion has gained ground that a widely distributed toxic agent affects the entire organism and attacks all or individual organs. As primary cause the fetus and placenta have been especially studied.

Serological Theories.— Veit formulated a comprehensive theory, based upon the demonstration of chorionic villi or placental cells in the maternal blood stream (Schmorl). These fetal cells, according to Ehrlich's laws of immunity were supposed to produce reactive processes, taking the form of precipitative (Leipmann), lytic (Kawasoye), toxic (Veit), or anaphylactic (Rosenau) changes. According to Veit, in normal pregnancy the mother is able to neutralize the syncytio-toxines—as he termed the placental poison—a slight excess of toxine causes kidney irritation and albuminuria; a greater excess producing grave systemic alterations, that is eclampsia. His theory though comprehensive and attractive lacks proof. Lately, however, a protective ferment action against fetal cells has been demonstrated. (Abderhalden). Possibly, with some variations, this new discovery may show that Veit's deductions are correct.

As the glands of *internal secretion* show changes during pregnancy either of insufficiency, overaction or disturbances of interrelation, these have been mentioned as the cause of eclampsia. The thyroids (Lange) and parathyroids (Vassale), the ovary (Pinnard), the corpus luteum

(Below), the adrenals and even the mammary gland (Sellheim) have been considered in this connection.

Not one of these many theories, and I have not attempted to allude to even one-half of them, can be accepted. No one has, hitherto, succeeded in demonstrating the presence of a specific poison in the blood or organs by physical, chemical, bacteriological or serological methods.

One fact alone cannot be lost sight of; the fetus, or, in its absence its equivalent, the placenta, must play an important role. In what form, by what agency, through what channels the poison acts, is as unknown today as in the days of Hippocrates.

Causation.— Let us return to solid ground! Clinically certain predisposing causes have been recognized. Eclampsia occurs once in every 300-600 pregnancies, statistics varying widely. Primiparae are more often affected (60% Büttner) and old primiparae particularly so. The mortality, on the other hand, is greater in multiparae.

The nearer term is approached the greater is the liability to attack; a mother carrying twins is always more disposed to eclampsia than one bearing a single child. Repetition in succeeding pregnancies occurs in only 1.5%. In rare instances the disease has developed as early as the third month. Eclampsia occurs during pregnancy in approximately 25%, in labor in 50%, during the puerperium in 25%. Eclampsia due to hydatid mole is most uncommon (5 or 6 cases); eclampsia without convulsions equally so. Eclampsia may first occur after the death of the child *in utero,* or continue unchecked, though the fetus is dead (Lichtenstein).

CONCLUSIONS.

The conclusions to be drawn from the various observations of which I have attempted to present a brief outline are:

1. That eclampsia is a well defined disease recognizable by definite pathological lesions, of which multiple thromboses and liver necroses are most characteristic.
2. That the pathological changes closely resemble those found in other systemic poisonings.
3. That the fetus or placenta or both give rise to the poison of eclampsia.
4. That, depending upon individual susceptibility, or the degree of poisoning, etc., various organs in a given case sustain the maximum damage, and consequently, apparently give rise to distinct types or symptom complexes, such as renal, hepatic, cerebral and septic.
5. That investigations or theoretical explanations centered upon any one organ have proved wanting; and, that neither the portal of entry nor the nature of the toxic agent are known.

983 Park Ave.

SOME POINTS GAINED DURING A TEN YEARS' EXPERIENCE IN CASES OF UNDOUBTED GASTRIC AND DUODENAL ULCERS.

BY

ANTHONY BASSLER, M. D.,
New York City.

Professor of Clinical Medicine, New York Polyclinic Medical School and Hospital; Visiting Physician, New York Polyclinic Hospital; Chief Gastroenterologist, German Poliklinik; Visiting Gastroenterologist, People's Hospital.

For reasons of incompleteness in examination, knowledge of the cases after they had been seen, and others, I am not including clinic cases, or those seen by me only at consultation in hospitals or homes. Among 7,603 histories, the diagnosis of gastric and duodenal ulcers occurs 724 times. After making a collection of these. I find a question mark after the ulcer diagnosis in 513. In each of the 724 there were

more or less reasons for believing that ulceration existed, although other diagnoses were more apparent; I will leave the 513 out, many of which no doubt were ulcers, and thus 211 remain. Of this 211, 106 are not considered because of incompleteness in examination, shortage of time under my observation, too few notes, irregularity of treatments, too short a time under treatment for the relief of the symptoms to consider them seriously, no records of end results, less than one year after the date of the diagnosis, and others that appeal to me as justice in the importance of the subject. This leaves 105 cases which I feel I was close enough in touch with for knowledge to myself. These 105 can primarily be divided into 74 medical and 31 surgical.

On the basis of my standard for this paper any medical man who reports 1,000 cases of ulcers, as was recently done, must have carefully examined 76,000 instances of abdominal disorders, a human impossibility for accurate work. For ten steady years from morning until night and almost twelve months in the year I have been busy in abdominal work, have always been on the look-out for ulcer cases, utilized every scientific means of examination at my command (and they are all that are known), and still I can report only 105 undoubted ones. Either this man has taken the surgical standards of chronicity of symptoms like those due to persistency of hyperacidity, hypersensation or hypermotility, or confused distress for undoubted pain, not interpreted his histories, physical examinations, and his laboratory findings accurately; or, he is a human phenomenon, having a staff of at least twenty men absolutely under him covering 100 new patients each day and for 300 days in the year.

General Conclusions from the 105 Cases.—In my experience, "in patients suffering from various gastric disturbances, 7.8 per cent." does not comprise undoubted ulcer cases. Including the questionable ones, this figure can stand, but for all the true and proven ones, never. Pain that appears immediately after taking food does not denote gastric ulcer in more instances than have ulcer, nor does pain 2 or 3 hours after meals and a remission history means duodenal ulcer in each instance; more symptoms of importance than these must be present. Epigastric tenderness or dorsal tenderness is present in many other conditions than ulcer. Vomiting, and even vomiting of blood, is not enough to make a diagnosis of ulcer upon, and the same is true of melena. If more medical men were better pathologists, read less, questioned their diagnoses more seriously, and were more surgical, their statistics would be more accurate to the truth; and, on the other hand, if more surgeons had a better knowledge of diagnoses, utilized all the means of arriving at them in each instance, and were more familiar with the various shades and differences of abdominal cases, they would learn things worth the while too. A medical man cannot write surgery in his statistics to a full extent, because he does not perform the operations, and usually cannot follow the cases out long enough after, and a surgeon's statistics in a diagnostic way also fall short of completely covering the subject, and I question some of the end results they publish. Both, working together, following each of the cases can do it, but not either one of them alone.

To make a quick and sure diagnosis of an undoubted ulcer case, the considerations of it as presented in the older text-books of

medicine still stand. There are many cases we today know are irregular to these, but in these, a fine discrimination, the modern means of examination now at our command, and careful study and much work in investigation will separate some out but not all—time and experience with each case are important factors. If there is reason to suspect that ulcer is present, treat them medically as such, and if not cleared up after that, a surgeon by exploratory incision can remove the question mark or make it an accurate diagnosis to stand on the history record. An undoubted ulcer case is one that has pain, real and true, when food is in the stomach or up to within three hours after; has a vomiting history if it is gastric, or a melena is present; has constant blood in test meals or feces on numbers of examinations; one in which the X-rays prove the presence of ulcer, either by pitting, adhesions, localized anchoring, or other suggestions, and these are permanent deformities whatever the acidity or motility; displays a positive string test on three occasions; one that gives a history of local subjective symptoms either constant or remissive and steady for the time in the remission; one that displays a sharply localized tenderness with spasm in the epigastrium, and surest when the tenderness corresponds to the locality of the change in the anatomy of organ as shown by the X-ray; and lastly, a person who shows debility, anemia, and the general aspect of an intense and chronic sufferer. These, and only these, are undoubted ulcer cases from a medical diagnostic standpoint. There are many more that are closely enough suggestive to assume a diagnosis, but these should not be included in medical statistics to help clear up the therapy of the subject, and there are some that surgeons find for the first time that would have responded to medical treatment if they had been detected and properly cared for.

Some of the questionable ones, made up in the order they appear on my histories are connected with the diagnosis of hemorrhagic gastritis; cancer; cirrhosis of the liver; appendicitis; hyperacidity and hypersecretion from various causes; cardiac, renal and vascular conditions of chronic types; chlorosis; cholelithiasis; thrombosis of left lobe of the liver; acute alcoholic gastritis; disorders of the esophagus; gastric, enteric and gall-bladder adhesions; organic stomach conditions with marked symptoms; embolism and thrombosis of the mesentery arteries; abscess of liver and perinephritic abscess; trauma; pernicious anemia; intestinal intoxications; intestinal diverticula; septicemia; acute diffuse peritonitis; subphrenic abscess; obstruction of the portal vein and disease of the hepatic artery; leukemia; sarcoma of the liver; and others occurring less often or not so important.

Conclusions on Results of Medical Treatment (74 cases).— The more intense and short the history, the surer the case will respond to medical treatment, providing there are no complications and the ulcer is not septic, thrombotic, or perforated. Even an ulcer that has been standing for some time and never been treated properly may respond to medical means—you can never tell which these will be, so all should be tried, for operation can be performed at any time. Cancer must be excluded and this often is difficult or impossible for the time being, particularly in those past middle life; when in doubt here advise operation at once. Syphilis, unsuspected, led me astray for a while on one occasion. One perforated on the fifth day in bed but she was saved by operation. One continued

vomiting blood in the face of what was done to stop it and was operated on the third day in bed. With this one I feel that the operation helped in his demise, and since I had four just as bad as he was that got well without it, I will permit no more hemorrhage cases to be operated upon unless they are duodenal. One of these died, however, but to lose only one in five of these desperate cases is good enough since most every one dies if operated upon. One case proved to be an undoubted cancer three months out of bed; he was operated on and is now alive six years after and apparently well. I have his cancer in a jar; it was incapsulated under the ulcer. Thus I lost two out of these 74 cases while in bed.

None of my cases are of less than a year after treatment; most, much longer than that. Seventeen have been operated upon in significant ways since that time. One for gall-stones three years afterwards; they were not found; another made the diagnosis and the stomach was examined and found normal. Two for fibroid uterus. One for an acute appendicitis which justified removal. And one for an exploratory incision in which a few adhesions stretching across to the gall-bladder were found, separated after ligation, covered with oil, and now, two years afterwards, they are worse than before; she was a very intense acute case when I treated her for ulcer. The other eleven I will mention later.

My conclusions are, that the bed and the Lenhartz method of feeding is best as a general routine, but if the stomach is intolerant or much hemorrhage exists it is better to feed by rectum for the first few days. All should be given alkalies to the point of keeping the urine neutral or alkaline in reaction for the first three weeks at least; the alkalies and careful feeding should be continued for several months after the bed treatment. Belladonna in the milk is often as efficient to control pain as is morphine hypodermically. The cases with the very intense symptoms may not tolerate the oils well. The Pressnitz bandage is grateful to all of them. Heat should not be used the first few days but may later on in the three weeks or more of bed treatment. None of the cases, particularly the markedly hemorrhagic ones, should be examined during the time in bed by pressure upon the tender area to see if the sensitiveness is diminishing. One of my house staff did this during the second week and precipitated a hemorrhage; it stopped when the patient was let alone. Iron in a readily assimilated organic form is necessary in almost every case, and best given from the second week on. I feel that the therapeutic use of the X-rays has helped some of my cases to complete healing. The duodenal method of alimentation for treating both gastric and duodenal ulcers looks inviting, but it is a delusion and a fallacy in actual practice. Slightly more cases get well without its use than with it, and those that do not recover on the well known and older methods are always surgical; they are not cases to try duodenal alimentation in, but to be referred to a surgeon instead.

Of the 74 cases, there were 21 that were undoubtedly duodenal. These patients were told that the bed and rest treatment might not be curative, that they might have to be operated upon at any time during it, or afterward if the results were not complete. All chose the bed experience, and in those up to two years ago, 10 are apparently well and happy. One of the remaining 11 was operated upon during the time in bed, the others afterward. If Mayo is right in finding so many more duodenal ulcers than gas-

tric at operation, then most of those that occur must heal without anyone's knowledge of their presence. At autopsy we find more gastric ulcers than duodenal. What becomes of most of the duodenal ulcers the surgeons find that the pathologists do not? Undoubtedly they heal, and while the surgeons have taught that every duodenal ulcer is chronic from the start and should be treated by gastroenterostomy, they still have to prove it to me. I feel that at least one-third of them having bona fide symptoms can be cured by medical means, and I believe we should insist upon this even against the opinions of such able surgeons as Mayo and Moynihan. They understand it that way in Germany and France, why not here when it is the fact? I have had 36 gastroenterostomies done by well known surgeons (there are almost as many more if I included every one of the cases I was in contact with) with an operative mortality in good surgical risks of 14 per cent. The results that three of the local surgeons gave me were close to the statistics the best known surgeons have published, but the others pulled the numbers up to that figure. Therefore, I advise judging all of the aspects of a case before recommending operation at the first instance, and I advise temporizing with medical treatment if I see a chance of success. That is my stand on this today and I have my troubles maintaining it. The surgical reports on ulcer are based on the fine-combings of chronic cases, and these are not all of the cases that exist; most get well before the surgeons see them.

End Results of the Operative Cases (31 cases).—To these 31, may be added the 11 duodenal ulcers in which operation was done, making 42 all told. Of these 42, nine were acute perforation cases. Five of these nine were operated upon in the first twelve hours after the perforation, with four successes. The four that were over twelve hours, had more or less general peritonitis in three and these died. The remaining one was operated upon on the fourth day after perforation and had a localized and walled off abscess under it and got well with simple drainage. The three that died had absence of liver dullness, a symptom in connection with ulcer that should never have been written in the text-books, for when present it is time to prepare the patient for the Hereafter—and from which a surgeon can then do little to save him—and think of how easy the early diagnosis of perforation can be made in almost every case!

Of the 33 left, and not including the above cases in which gastroenterostomy was done at the time or later, there were 22 duodenal, 9 gastric, and 2 in which ulcers of both existed. Nine of the duodenal had two or more ulcers present. In all of the gastric ulcers (excepting the two compound mentioned) they were single. In the gastric, the lesser curvature and posterior wall near the pylorus were the sites of election. In the duodenal, they were in the posterior wall near the pylorus in every case excepting one when it was found on the gastric side. The gastric ulcers were usually organized in the wall and complicating adhesions were common. In the duodenal they were smaller, softer, not so thick, and adhesions were not so common. In eight of the duodenal cases, gall-stones or a bad appendix or both were also found. In only one of the gastric alone was a bad appendix present, but in both of the combined the appendix was distinctly diseased, and in one a single gall-stone the size of a marble was present.

In all of the duodenal, the gastro-duodenal, and in 6 of the gastric, gastro-enterostomy was performed. I will leave out of consideration the other surgery found necessary in individual cases. The rate of mortality in these, including all perforation cases was about 23 per cent. I think if they all were operated upon today and by good hands this figure would be markedly lower. Excision of the ulcer was done in 3 instances, all with a successful result. Among some of the additional facts I learned from this operative experience are the following:

Be careful of the alcoholic man of middle age who suddenly stops drinking because he does not feel well and then begins vomiting a bilious fluid about three hours after meals. I have seen two of these perforate on about the fourth day. Many gastric and duodenal ulcers perforate during the night. In the presence of a gall-stone history, a melena usually means a duodenal ulcer. Whenever you can, examine and remove an appendix when you find an ulcer present. You need not examine the upper abdomen in each instance when operating primarily upon an appendix which is found markedly diseased. If, however, there have been gastric symptoms that cause doubt in your mind, it is well to make a free incision and examine the pyloric end of the stomach, duodenum, and also the gall-bladder while your hand is up there. If you then find an ulcer do the necessary surgery to help cure it, for while you may leave gall-stones the taking out of an appendix alone will not cure the ulcer —two of my cases proved this to me.

The further away from the pyloric muscle a gastric or duodenal ulcer is situated, the fewer are the cures by gastroenterostomy. This is not so true of the duodenal as the gastric; so in all of the duodenal a gastro-enterostomy can be tried and usually is successful if the slit is long enough and the lay of the parts are anatomical. If a gastric ulcer can be excised it means that it is far enough away from the pylorus to do it and few or no adhesions are present. In every one of these instances excise it and do not be afraid of the deformity left in the stomach, for I have followed out the three excision gastric cases I had and I found by X-ray that these stomachs assume a more normal shape as time goes on. When you can excise, do it transversely, even if considerable gastrectomy is called for. In many cases of ulcer of the smaller curvature and some of the posterior wall you can do an excision if you will study the parts and think a moment or two. Why jump to doing a gastroenterostomy in all when it may not cure the gastric ulcer that is some distance from the pylorus? Even a few right near the pylorus itself may be excised if one keeps his wits and studies the parts. Nevertheless in an ulcer situated anywhere in the stomach do not primarily close the pylorus so as not to interfere with the anastomosis, for, if it is near to the body of the stomach and you do a pyloric closure with a gastroenterostomy—and it is my case—I expect it back in my hands in a short time. If you do a gastroenterostomy and a vicious circle ensues, whatever else you do in the way of surgery at the second time, be sure to close the pylorus before you finish. In gastric ulcer where excision is done, a gastroenterostomy is good practise as a routine, but if the case looks favorable without it in all probability it is unnecessary. In the gastric perforation cases simply attend to the rent and drain with a tube. If the sutures bridge the lumen of a duodenum dangerously, do a gastroenteros-

tomy at once. But remember this, though many of the cases are in bad shape when operated upon and with most of these the closing of the rent draws the organ into the lumen dangerously, nevertheless, practically all do well without a gastroenterostomy. When the patient's general condition is poor, and the peritoneum shows much scattered lymph formation, be satisfied with only suturing and drainage and, if you want to, do the gastroenterostomy some weeks later. Still, in all perforated duodenums you must lean in favor of doing a gastroenterostomy at the time of closing the rent—in the stomach not necessarily. In such cases it depends much upon the general condition of the patient, the findings in the peritoneum, where the contracture is after the rent is sutured, and how many and where the ulcers are situated, for in this discriminating judgment, even more than upon technical surgical ability, one surgeon's results are better than another. Lastly, and by no means the least important, remember that the cause of ulcer is still not known, so do not be too hasty to promise a cure or to ecstasiate on a result after either medical or surgical treatments, for an occasional case comes along, after all that science and men have done to cure it, which still has the ulcer or has developed another. Up to the present time I have seen 24 cases in which ulcer surgery other than excision was done and the ulcer symptoms were still present. Against this, however, are hundreds that have gotten entirely well from medical and surgical treatments.

Filling the urethra with warm olive oil will many times facilitate the passage of the catheter.

SOME REMARKS ON THE USE OF TUBERCULIN.

BY

E. S. HARDING, M. D.,
Montreal, P. Q.

All pathogenic microbes in interaction with the tissues of the human body lead to two different sets of products:

1st. Those tending to establish sensitiveness to the infecting agent.

2nd. Those tending to confer immunity.

Thus in tuberculosis; the production of the first renders the body sensitive to the presence of tubercular products in the circulation or in the tissues. With this sensitiveness present, when a sufficient quantity of tubercular products is emptied into the circulation, certain symptoms are established; as fever, malaise, etc. This is called a reaction. Without this sensitiveness we get no reaction. The second product confers immunity to the attacks of the infection agent. In most contagious diseases when enough immunity is developed to overcome the attack, the body has acquired an immunity to last for life. Not so in tuberculosis. Here the attack is not acute and the immunity is acquired slowly, especially in a system already run down. A person who has never been infected with tuberculosis has no specific immunity developed against that disease. He has the resistance of the phagocytes and the other protective agents opposed to stray bacilli, but specific immunity is not developed until the actual disease is present. We will call this product which confers immunity the *antibody*—and we must remember that it is produced by the interaction of the bacilli or bacillary products and the tissues. Another fact worthy of note is that the tubercle bacillus is a parasite and only obtains

a foothold in the lungs under conditions of lowered tissue vitality. The growth of the bacilli forms tubercles which are nonvascular—that is, the bacilli are growing in areas where the blood supply is almost cut off, and consequently they are difficult to reach through the blood stream. From the nonvascular area of growth the toxic products do not readily enter into the circulation and the early disease is present without producing severe symptoms. Exercise produces a greater flow of blood to the part and the toxic products thus entering the circulation set up a reaction. This is the reason we get symptoms, fever, etc., after exercise. It is an autoinoculation and the fact of its presence is now used both as a method of diagnosis and of treatment. For the early slight reactions, the system develops enough immunity to counteract them, but as the area of diseased tissues is increased, the production of antibodies by the system fails. It would appear that the tissues affected soon lose their power of producing antibodies and the rest of the system only produces them when in interaction with the bacterial products. Hence the entrance of bacterial products into the blood stream, or the injection of tubercular products into the system, tends to a more wholesale production of antibodies. The actual flow of bacterial products from a diseased area is beset, however, with many dangers.

Next we must remember that we have as yet no agents having bactericidal powers against the bacilli in the body; nor any having even inhibiting powers against their growth. Consequently we must combat the inroads of the bacilli and procure their elimination from the body solely by increasing the power of resistance of the tissues. It is this power of tuberculin to increase the resistance, to produce antibodies, conferring immunity against tuberculosis, that recommends it to our use. If by using tuberculin we can stimulate the production of antibodies and confer a relative or total immunity without in any way endangering an increase of the disease, we are accomplishing a great deal towards a cure. Probably the greatest claim for the use of tuberculin is that the cures produced under its use are more permanent than those under rest conditions only.

Let us now review the action of three different methods of treatment:

1st. The Sanatorium Method.—This by enforced rest and proper hygienic control of body functions aims to acquire a high grade of systemic metabolism and thus to place the tissues in a condition to resist the disease. Healthy tissues will resist the entrance of the bacilli, but it means a long slow process to make the tissues already diseased strong enough to overcome the pathological condition. This means that one must have the very earliest cases for sanatorium treatment. In this method there is no employment of any artificial means of increasing immunity.

2nd. The Work Cure.—This by a series of graduated exercises, sends extra blood into the affected region of the lungs, setting up thereby a flow of bacterial products into the general circulation. This causes interaction of tubercular products and the systemic tissues, resulting in the production of reactions (autoinoculations), and the extra development of antibodies. The exercises are controlled so that the amount of reaction will not exceed the control of the increased immunity.

3rd. The Tuberculin Treatment.—This, by the introduction of artificial tubercular products from without, into the system, in-

creases the production of antibodies and at the same time disturbs as little as possible the actual area of disease. It is an attempt to stimulate the other parts of the body to produce antibodies and thus have more forces to combat the pathological conditions at the seat of infection. We might add that when the introduction of tuberculin produces a local reaction—that is, a hyperemia at the seat of disease, an autoinoculation follows.

The further claims for the therapeutic properties of tuberculin besides the production of antibodies are:

An increased phagocytosis whereby some of the living bacilli are exterminated.

Development of fibrosis in the tubercular tissues.

Coming from the pathological and theoretical, let us sum up the advantages and disadvantages from the different methods of treatment that have proven of practical every day utility.

1. The advantages of sanatorium treatment are:

The perfect control of patients.

The attainment of absolute rest in febrile cases.

The moral support of numbers in undergoing a long tiresome period of treatment.

The opportunities for educating and training the patient.

The disadvantages are:

The enormous expense necessary.

Only a small percentage of actual cases can be treated.

The period of treatment must be limited to a certain time.

Treatment in the higher altitudes incurs a risk when patients return to their own homes.

The long period of inaction and rest produces what some have described as "phthisical laziness."

The results in after years have not been entirely satisfactory.

2. The advantages and disadvantages of the work cure. These I do not feel competent to discuss, but the claim by the advocates of this system that a higher state of mental, moral and physical health can be obtained in the individual by work than by rest seems just and warranted.

3. The advantages of the tuberculin method at a dispensary combined with home treatment are:

It is cheap.

A relatively large number can be treated in any community.

It can be extended over a long period of time without disadvantage.

Work is possible for a large number of cases.

The moral support of others receiving similar treatment is present.

There is an opportunity of controlling and watching patients over a long period of time.

The very earliest closed cases may be tested and treated if necessary.

The disadvantages are:

That it is impossible to satisfactorily treat febrile cases.

Control of patients is not absolute for watching and training.

Home conditions may be adverse to good results.

To sum up—Sanatoria are essential for training the febrile cases, and for the leisure class with means.

The universal treatment of cases must be done by the dispensary, and the most efficient dispensary treatment is with the aid of tuberculin.

The use of tuberculin in treatment has now become almost universal, not only in sanatoria and hospitals, but in dispensaries and private practice.

There are three distinct methods of use:

I. *Without reactions.* This method begins with the most minute doses and by gradual and regular increases is carried to the larger doses. The idea is to increase the immunity gradually and to graduate each successive dose so that it will not be greater than the resistance of the body can meet. The greatest caution is taken not to have a reaction, and if one occurs, the dose is diminished or delayed. This is the original method of Koch and is today used nearly everywhere. It is strongly advocated at the Saranac school through the teaching of Trudeau, who was one of the pioneers of the method. Tuberculin is given with more scientific care at Saranac than at any institution I ever visited. In Edinburgh, Dr. Lyall of the Philip's Dispensary, told me he never had a reaction, but this was due to the variety of tuberculin used rather than the careful mode of administration.

II. *The second method is that which disregards reactions.*

The doses here are larger and if a reaction occurs little notice is taken of it, the next dose being increased as before. It is a heroic method and has been successful in very few hands. The principal apostle of it now is Dr. Carmac Wilkinson, who has a very large tuberculosis clinic in South London, and who claims excellent results.

As a digression I would just like to say a word about his methods. I used to think while watching him how his method of measuring doses would make a Saranac-trained-man's hair rise. He used a pipette of uniform bore into which he drew the tuberculin from the bottle of solution or from the stock bottle. The first dose was an indefinite measure of about ¼ inch in the pipette, the length of which was marked on the patient's record or chart by a line. At the next dose the length of this line was doubled—the tuberculin drawn into the pipette and measured against the line on the paper. This was repeated until the line reached a certain length (really the limit of the pipette) when a stronger stock bottle was used and the line shortened again. If the reaction was very severe the former dose was repeated or a dose omitted, but slight reactions were ignored. I must say from what I saw of the patients' records he seemed to be getting good results.

III. *The third method is that of utilizing slight reactions as an aid in the treatment.* This method is advocated by scattered users of tuberculin, and a book recently published by Riviere and Morland is strongly in its favor. It certainly has a great deal to recommend it.

Coming now to the varieties of tuberculin used—the principles of which are T. R., B. E., B. F., TBK., P. T. O., P. T.

There is no need of going into their mode of manufacture, suffice it to say that some are made from the soluble products of the growth of the bacilli, some from the solid substances, some are filtrates, some are residues, and some are combined. In regard to the use and action of the various forms I would like to quote Riviere and Morland:

"The tuberculin reaction from all forms of tuberculin is precisely the same though varying markedly in degree."

Similar blood changes in respect to opsonic content, etc., are obtained from all.

Clinicians in all parts of the world using all manner of different kinds of tuberculin

have put on record similar results. And practically all agree that in administering tuberculin more depends on the mode of administration than on the kind of tuberculin employed.

There is a difference in regard to doses and also to reactions with the different preparations. P. T. O. and T. BK. certainly seem to give fewer and milder reactions than the other varieties. The bovine forms, P. T. O. and P. T. were used extensively but not exclusively by Wilkinson in his heroic doses. And T. BK. was used by Lyall of Edinburgh, who said he never had had a reaction.

I shall now briefly outline the method of treatment as employed at the Royal Edward Institute Dispensary in Montreal, where I have been using tuberculin about 2½ years.

When a patient upon examination seems suitable for tuberculin—that is, the case is not utterly hopeless and is practically afebrile—one of the nurses is deputed to instruct him in taking and recording his temperature. He is supplied with a thermometer (gratuitous to the destitute—cost price to others) and told to take and record his temperature at home under rest conditions at 9 a. m., 12 a. m., 4 p. m., and 8 p. m. The nurse then visits his home and sees that he has the facilities and equipment for proper home treatment. At the second visit to the institute he brings his sputum for examination. His daily temperature is then noted and criticized to see that he takes it correctly. If there is a daily rise of temperature to 100 he is ordered absolute rest for a week or longer if necessary. When the temperature becomes normal, he is given a tuberculin test, if the sputum has been found negative. This is given on alternate days, usually Thursday, Saturday and Monday. And if found positive the tuberculin treatment is begun in a week. I have never given B. F. until the temperature is absolutely below 99, but I have given P. T. O. in several cases where the temperature has been 100 or more and apparently with good results—the temperature usually coming down very gradually. During the weaker doses the injections are given twice a week, but as the doses increase this is changed to once a week. Injections are given in the subscapular or in the suprascapular regions, the arm being found to be more sensitive and more subject to local reactions. After two weeks of normal temperature exercise is begun gradually, and when this has reached three or four hours a day of walking, the patient is told to do light work, and look for a suitable job if his financial condition requires it—I must say that I have not had a case where I have regretted having sent the patient to work (except in one instance where he neglected to return for treatment). I have several cases who have not stopped work except for a week or two at the inauguration of treatment, and they have done well. If I changed my methods at all it would be to put the patients to work earlier still. The spectacle of seeing a patient working regularly without any fever under tuberculin treatment affords the greatest pleasure and satisfaction to the physician who is dealing continuously with the discouraging task of treating the tuberculous poor.

At the Royal Edward Institute we have been largely using B. F. preparation, but for the past five months I have used P. T. O. almost exclusively on the new patients and found it less liable to intense reactions. In regard to reactions I am rather particular in using B. F. to avoid anything

in the nature of a reaction, but in using P. T. O. I usually disregard slight reactions. There is often a complaint of pain at the seat of injection without any rise of fever. When there is a rise of fever it is usually eighteen to twenty-four hours after injection, not severe and of short duration. Occasionally I have had a fairly severe reaction with P. T. O. but very often it has been during an attack of coryza in the patient, which until the injection has been afebrile. A fairly frequent complaint has been pain in the affected side of the chest. I have remarked the feeling of well-being in patients after a few injections of the P. T. O., that I seldom experienced in using B. F.

After finishing a course of P. T. O., which consists of doses from a milligram to a gram—that is solution No. II up to 1 cc. of the stock solution—the patient is continued on B. F. Starting at 0.1 mgm. and increasing to 0.1 gm.—that is starting with solution No. III and completing No. I.

Six to nine months after completion of the course if any signs are present in the lungs a shorter and quicker series of doses is given.

R. Allan Bennett of Torquay, has expressed the almost universal opinion of tuberculin when he said:

"I began work with a bias against it. The first few weeks did nothing to remove this feeling—but as soon as I abandoned all attempt to hurry matters, opposition died away and I feel quite convinced that tuberculin is of the very highest value in the treatment of the disease—that every tuberculosis doctor should use it and that it should take its place with sanatorium and isolation hospitals. It is of course impossible to expect that every case of tuberculosis will obtain benefit from tuberculin."

A COMPARATIVE STUDY OF TWO ADVANCED CASES OF CANCER OF THE CERVIX UTERI.

BY

DOUGAL BISSELL, M. D.,
New York City.

These two cases of advanced cancer of the cervix are reported to emphasize certain important facts in connection with the present widespread demand, when this stage of the disease is encountered, for the removal of the uterus, its adnexa and adjacent tissues, by some one of the several radical surgical procedures now in vogue. Though the history of neither case is as full as might be desired; the exact cause of death, for instance, in one not having been determined by autopsy, yet they furnish sufficient data for individual and comparative study. They are reported also with the feeling that records of concrete cases are of value in furnishing not only the most satisfactory basis for generalization, but are helpful in determining the question of operability or inoperability in a given case.

CASE No. I. Miss A., age 46. Menopause at 36. Bloody discharge for past five months. Considerable pain in back, micturition frequent. Slight cachexia. Examined Dec. 5th, 1910. Vaginal discharge bloody, offensive and somewhat irritating. Extensive erosion of cervix and vaginal mucous membrane. Thickening of parametric tissue, with consequent fixation of cervix. Father died of cancer of the throat.

Diagnosis.—Carcinoma of the cervix.

Operation.—Dec. 7th, 1910. The diseased area of the cervix was thoroughly scraped with a sharp curette, and the actual cautery extensively applied to this surface. The large cervical cavity remaining was packed with a cotton tampon saturated with a solution of equal parts of zinc chloride and water, which was held in position by a vaginal packing soaked in vasel-

ine to protect the lower area of the vagina. The vaginal tampon was removed on the 2nd day. On the tenth day a large mass of tissue, two or more inches in length and an inch or more in thickness, was expelled per vaginum. The patient had a comfortable convalescence, and for eight months or more continued in good health. The vaginal discharge practically ceased. Examination eight months after showed the vagina one and a half inches only in depth with hard and thickened walls. On or about November 7th, 1911 she began to fail rapidly, extreme constipation, passing of mucus per rectum, chills and fever—anasarca, anorexia and vomiting, tenderness over stomach, and there were noted enlargements of the liver and kidney regions. Vomiting became so distressing that it was decided to give temporary relief by gastroenterostomy, though it was fully appreciated that death was inevitable and near. Vomiting was immediately relieved, but she survived operation only a few days.

Post-mortem Findings.—Left kidney pelvis distended, cortex thick, surface lobulated. Right kidney 15x10x8 cm., pelvis somewhat distended, with small abscess cavities. Bladder wall very much thickened. Section of cervix showed thick purulent fluid. Wound at site of gastro-intestinal anastomosis apparently healthy.

Anatomical Diagnosis.—Pyonephrosis, hydronephrosis, carcinoma cervix uteri region. Metastasis in diaphragm.

Microscopic Findings.—Left kidney thickened, vessels congested, round cell infiltration, atrophy of tubercle. Left ureter thickened, lumen obliterated, wall infiltrated by new growth similar to that in the cervix. Right kidney cortex showed small collection of pus cells. Diffuse round cell infiltration and atrophy of tubules. Mesenteric lymph nodes infiltrated by new growth. Diaphragm thickened, increase of connective tissue and diffuse infiltration of new growth; cervix showed growth of large cells in well defined nests, infiltrating muscularis.

Microscopical Diagnosis.—Carcinoma of cervix uteri with metastasis in left ureter, diaphragm and mesenteric nodes. Atrophy of left kidney, compensatory hypertrophy of right kidney, with multiple abscesses and fatty degeneration of liver.

Case No. II. Mrs. S., aged 47. Married 29 years. One child 28 years old, instrumental delivery. Menstruation from seven to ten days, and normal until three months ago. No pain. For the past three months had slight but constant bloody discharge, not offensive. Pain in lower abdominal region and back, radiating down hip. Loss of weight and marked anemia. Trace of albumin in urine, no casts. Digital examination showed a large cervix with growth from right side extending into parametritic tissue. Fundus movable.

Operation Jan. 25th, 1912. A circular incision was made about the vaginal portion of cervix, and at considerable distance from it, the vaginal mucous membrane was dissected from its adjacent tissue, and an inch or more removed. The growth on the right side of the cervix proved to be so extensive that I was forced to open the abdomen in order to complete the operation intelligently. The bladder was found firmly adherent to the anterior surface of the cervix, and a large portion of it had to be removed. The growth from the right side of the cervix completely surrounded the lower portion of the right ureter, and it was found necessary to sever the ureter two inches from its insertion into bladder. The opening into bladder was closed with interrupted chromic catgut sutures, and the right end of the ureter was anchored in the right angle of the bladder wound. A gauze drain was passed from Douglas cul de sac into the vagina.

The patient made a good recovery, save that the bladder wound opened completely on removing the gauze.

A careful examination of the fistula showed a complete loss of that portion of the bladder wall extending from about the normal left ureter to the artificial insertion of the right ureter, which was high up on the right pelvic wall; bladder and vagina were, therefore, a continuous tract, and the mouth of each ureter could be distinctly seen in each lateral angle. As the edges of the fistula appeared healthy repair was attempted seven weeks after operation. The chief mechanical difficulty involved in the surgical problem was to so denude the edges of the wound so not to encroach upon or injure the mouths of the ureters, and place the sutures so as to ensure an abso-

lute apposition of the denuded area. Fifteen silver wire sutures were needed to complete the closure. The sutures were removed in two weeks. Repair perfect, the entire field of the operation seemed healthy, both in appearance and to touch. Three weeks after closing the fistula, the patient complained of pain in the left kidney region. Urine showed colon bacillus infection, which was treated by acid sodium phosphate and urotropine.

The specimen removed at first operation was given to Dr. William Berkeley, who made from it sufficient serum for six injections. The injections were given as follows:

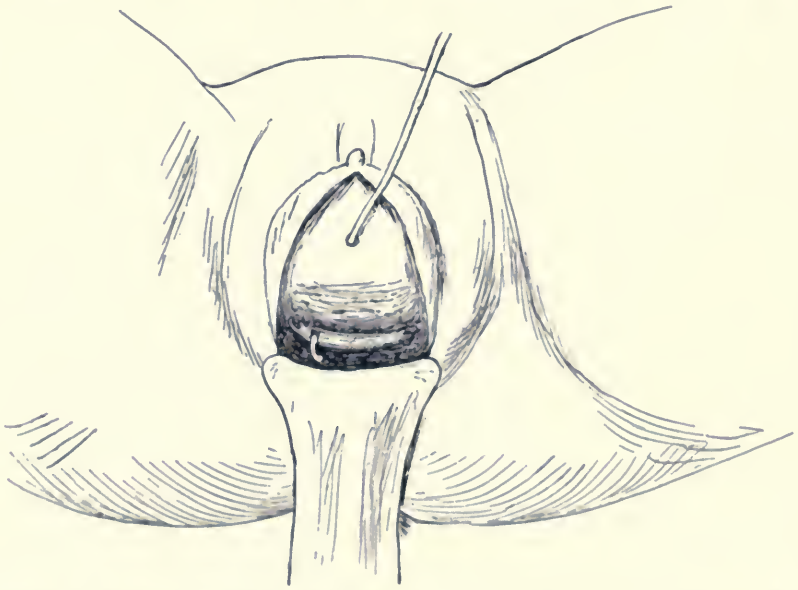
First	intra muscular,	May 1st, 1912.....	5 cc.
Second	do.	May 4th, " 15	cc.
Third	intra venous,	May 9th, " 12	cc.
Fourth	do.	May 14th, " 10	cc.
Fifth	do.	May 31st, " 15	cc.
Sixth	do.	June 9th, " 15	cc.

Dr. Berkeley's report on specimen was "Squamous cell carcinoma of cervix. The growth is very extensive, and quite typical." He further states that "the gross specimen is one of the largest cervical cancers I have ever seen successfully removed."

The patient was discharged from the hospital June 6th, 1912. Examination then showed a healthy vaginal vault, and no thickening in the pelvic region. In the right kidney there was, however, noted an appreciable enlargement. Amount of urine secreted normal.

Hemoglobin, which five weeks after admission was 30%, had improved at time of dismissal to 60%. While her general condition was slightly improved she was as much of an invalid as when she entered.

The first case is one typical of a class possessing unquestionable evidence of a well advanced malignant lesion, yet a class to which a radical operation is not infrequently applied. In the light of knowledge gained from personal experience, it seemed to me beyond surgical cure, so with the idea only of checking the rapidity of growth, and ameliorating some of the local symptoms, cautery and caustic were applied. The application disturbed her but little, and out of the eleven months she lived eight of them were spent in comparative comfort.



I am of the opinion that a radical operation would have exposed the patient to greater risk of immediate death, and would have offered no hope of ultimate recovery.

Certain interesting, unusual and instructive features were revealed by autopsy,

namely the infiltrations of the wall of the left ureter by a carcinomatous growth similar to that in the cervix, metastasis in the diaphragm and atrophy of the left kidney, with compensatory hypertrophy of the right kidney.

The radical operation by the combined route was selected in the second case, because the area of invasion was in the middle and upper portion of the cervix, and so extensively involved the structures to the right that to have removed it per vaginum by any of the known methods would have been impossible, without inflicting an immediately irreparable injury to the ureter. Injury to the ureter, made when working through the abdominal route, can be dealt with more satisfactorily than when it is inflicted through the vaginal route, and the former should, therefore, be the choice under these circumstances.

A more radical operation could hardly have been performed than that of this case. As a proof that the operation was complete with respect to the area of primary invasion, I would remind you of the healthy vaginal vault, and of the successful repair of the large fistula, and the freedom from recurrence in this area during her lifetime.

Retrospectively, it seems to me that the surgical result in this unpromising case was better than I had reason to hope, particularly after determining, by exploration, the exact extent of involvement, yet the disease was not checked.

Areas at great distance from the primary lesion must have already been affected, through the lymphatic system or blood stream, at the time of operation. In fact, the surgical effort only jeopardized the patient's life, and offered grave chances of added complications, equally, if not more distressing than were the original symptoms.

In the early stages of cancer of the uterus all surgeons are in accord respecting the advisability of some one of the several radical operative procedures now in vogue, but the combined experience of the surgical world has not yet determined a line of demarcation between operable and inoperable cases, and, until such is determined, each surgeon has only his individual experience to guide him.

In my judgment, when malignancy has practically destroyed the cervix, and has involved the vaginal mucosa or adjacent tissues, metastasis, with few exceptions, has already begun to develop, and the disease is beyond the reach of the knife.

Deaver, in a recent article on cancer of the breast, makes a significant remark, which, in my opinion, is equally applicable to cancer of the cervix uteri, namely, that where a positive diagnosis of mammary cancer can be made the hope of operative cure is often in vain, for the classical signs are usually unmistakable evidence of extensive metastasis. The laws governing the invasion of the pelvis differ little, if any, from those governing the invasion of the mammary region, so that when a growth of the uterus has developed to the extent of being not a suspicious growth, but an unmistakable cancer, with all the classic symptoms, the justifiableness of submitting such a patient to the knife is, in my mind, questionable.

When these seemingly hopeless cases present themselves, cases where the destruction of the cervix is complete, and where the growth has involved the vagina, and parametritic tissues, the cautery alone, or combined with zinc chloride, should be the method of choice.

The hope of the future, with regard to the surgical cure of cancer, lies, as has been said, in the recognition of the disease in its early stage. This recognition is at present usually an accident. The layman must, therefore, be educated to understand the necessity for frequent examination and to appreciate the fact that no growth should be considered innocent till it is so proven.

219 W. 79th Street, New York City.

THE ANNOTATOR.

The New Art of Ventilation.[1]—C. E. A. Winslow remarks that ventilation became a vigorous practical art before there was any knowledge as to the effect upon the body of the air confined spaces, before there was any sound conception of the objects of ventilation.

The supposed deleterious influence of the carbonic dioxide and exhaled organic matter are now thought to be due to heat and moisture only. The logical conclusion at first would seem to be then that we do not ventilate at all but maintain a low temperature and let air changes take care of themselves.

But even if the odors from the body were not injurious they are disagreeable.

The carbon monoxide and other poisonous substances from illuminants, the dust and fumes of factories must be eliminated. Air change is essential but the quality of the air supplied is more important than the quantity, the object being to secure the best conditions for the working of the living machine, not the removal of supposititious poisonous products.

Some of the fundamental principles of the new art of ventilation based upon the results of modern physiology are the following:

1. Good ventilation involves the lowering of the temperature of a room by pure air and the removal of the excess of heat and moisture.

2. Heated air should be removed from above and fresh cool air admitted below.

3. Incoming cool air should be tempered unless the number of occupants in a room is small.

4. Cool but tempered air must be evenly distributed within the space to be ventilated and this must be done by means of multiple openings near the floor giving good distribution, with corresponding openings above for the removal of heated air.

Incoming air must also be washed or filtered to free it from its dust.

Above all things it is important to see that a ventilating system is properly managed for otherwise no matter how perfect the plant may be the results will be unsatisfactory.

[1] *Medical Review of Reviews.*

Auto-Intoxication as a Cause of Mental Disease.[1]—L. V. Briggs states that this condition is now recognized as the cause of many diseases and abnormal conditions of the body, and an important factor in disturbances of the brain which result in mental disease.

The first duty of the physician is to prevent conditions which are liable to result in disturbed metabolism.

Hence, this problem should be studied by the family physician, and every opportunity embraced to render one's self proficient as to the cause and prevention of mental disease.

The physician should not merely use palliative treatment for these patients with incipient mental disease until the time comes when they can be committed to a lunatic asylum, but the most active treatment should be begun as soon as disturbed metabolism is apparent, especially if accompanied by insomnia, confusion, or depression. If it becomes necessary to commit a patient the case should be followed up by the family physician, the better to enable him to manage similar cases in the future, or to prevent a similar condition in other members of the same family.

The treatment should be vigorous including flushings of the colon with one to three quarts of normal saline solution con-

[1] *St. Louis Medical Review.*

taining a suitable antiseptic, the enema being retained as long as possible.

A liquid diet including plenty of buttermilk should be given, and this may gradually yield to a semi-solid and then to a solid diet.

Tonics should be given before or after meals and intestinal antiseptics between meals, when indicated.

A sufficient quantity of easily assimilated food should also be taken before retiring. Acid conditions should be counteracted by alkalies, and prolonged baths and the hot pack should be suitably used.

The urine, feces, and blood should be frequently examined, and the treatment regulated by the findings which are obtained.

The Relation of Drainage Operations to the Public Health.[1]– C. Wellman compares submerged and water-logged earth which is cut off from the circulation of its normal ground water and soil air to a closed and darkened dwelling.

Its fatal stagnation and seal are removed by drainage with the result that air-shunning germs and creatures give place to air-loving cereal and fruit.

The sanitary improvement is often only a by-product of the economic gain but it is a substantial advantage.

A soil may be divided into zones:

1. The zone of ground water resting on an impervious foundation.
2. The zone of capillary soil water.
3. The zone of evaporation.

The surface dampness may be decreased by (1) lowering the level of the ground water, or (2) by cultivation which loosens the texture of the ground.

In wet countries drainage and cultivation go hand in hand with the decrease in soil moisture and hence of air saturation. Water-logged soil is conducive to tuberculosis, bronchitis, pneumonia, etc. It is for this reason that physicians send their consumptive patients to localities where the saturation of the air is low.

The germ of typhoid fever will live eighty-eight days in wet soil and twenty-eight in dry soil. The most striking example of the effect of drainage on the public health is the diminution of malarial fevers which are always preventable and eradicable, as seen especially in Africa at Khartum, in Egypt at Ismailia, and at the Panama Canal Zone.

In the Panama Canal Zone drainage has reduced the mortality from 600 per 1,000 under the French regime, to 14 or 15 per 1,000.

During the building of the Canal there has been no greater loss in working days from disease than in a similar work in the healthful states.

The writer proposes that a portion of the Mississippi delta be similarly drained by the government in order to produce an area of the richest land in the world. What would a large portion of the Southern States be if properly drained and reclaimed?

One and a half billions of dollars are paid out annually for preventable diseases, while six million lives are needlessly destroyed by these diseases every decade.

Fomites in the Transmission of Disease.[1]—Walker calls attention to the report of the Committee on Communicable Diseases, published in the *American Journal of Public Health* for April and states that certain of the committee's conclusions in regard to measles and scarlet fever, should not be allowed to pass without comment. Both measles and scarlet fever, the committee state, are transmitted by means of the nasopharyngeal secretions and not by the scales of desquamation; in regard to measles, they add, "a child may infect others before the appearance of the rash or during the catarrhal stage." It is therefore surprising to read that it seems to make little difference whether the premises are disinfected or not, and that "it is fairly well admitted by all observers that measles is not transmitted by means of fomites."

Admitting as they do, the infectivity of the nasopharyngeal secretions, it surely follows that any dust on the floor of the sickroom with which these discharges may come in contact is liable to become infected; from this, again, it follows that not merely

[1] *Inter-State Medical Journal*, June, 1912.

[1] J. T. A. Walker, *Med. Record*, July 12, 1913.

terminal disinfection, but daily systematic disinfection throughout the course of the disease is clearly indicated as a precaution which should never be omitted.

The view expressed in the report that scarlet fever "is transmitted by contact alone and that all apparent evidence to the contrary is based on lack of knowledge or a misapprehension of facts," will be accepted by few public health workers. The committee are certainly not justified in asserting that "the evidence in favor of transmission by fomites is growing less." Transmission by fomites may be doubted in certain quarters but there still exists a considerable volume of opinion in favor of the more rational view that while direct infection is probably the commoner method, indirect infection cannot safely be ignored: or as expressed in an editorial in the *Medical Council* for May, "the only perfectly safe fomites are the thoroughly disinfected ones."

In this connection it may be interesting to recall an incident related by Sir Ernest Shackleton on his return from his unsuccessful attempt to reach the pole. Some articles of clothing were taken from a chest which had not been opened from the start of the expedition three months before, and which consequently had no opportunity of becoming infected during the latter period. This clothing was distributed among six members of the party, four of whom within 36 hours developed septic sore throats. Having regard to the fact that the party had been living in the frozen regions for the greater part of the period mentioned—*i. e.* away from all other possible sources of infection—and were at the time in robust health, this incident in itself proves conclusively that infection can readily be transmitted by means of fomites. This term is defined in the committee's report for 1911 as "articles which retain the infection for a considerable period of time"; no reference is made to dust—the most active of all fomites—notwithstanding the fact that Prof. C. A. E. Winslow recently obtained 22,700 acid-forming streptococci per gram from an average of 19 samples of dust taken from New York schoolrooms, as described in the *American Journal of Public Health*, September, 1912.

The committee quote Dr. Morton, superintendent of a Scottish hospital in support of their contention that indirect infection may be ignored and that consequently disinfection is unnecessary. Against this British authority may be cited the following: English Local Government Board: "Proper ventilation of schoolrooms, avoidance of overcrowding, cleanliness, and, where needed, disinfection of schoolrooms and school appliances, do much to prevent the spread of infectious diseases." Scotch Local Government Board: "The local authority should also endeavor to see that disinfection is carried out in all places of public resort. They should arrange with the persons in charge of schools, churches, halls, theatres, markets, railway stations, etc., to have those places periodically disinfected by the officers of the local authority. The disinfection of public conveyances, such as railway carriages, tramcars, omnibuses, hackney carriages, etc., should also receive attention." Scotch Education Department: "Periodic disinfection is advisable, even when no known infectious disease has been present." Urban District Councils Association: "That in the interests of public health it is desirable in the opinion of this Conference of Urban District Councils of England and Wales, that a regular system of disinfection be established in every school." Dr. Henry Kenwood, Chadwick Professor of Hygiene in the University of London: "These 'missed' early or mild cases spread much infection in school classrooms, and despite all the medical officers of health, the medical inspectors of schools, and the most skilled co-operation of school teachers may be able to achieve, this unrecognized infection will continue, in a reduced measure, to be a menace to the health of school children; and frequent disinfection is an easily practicable means of reducing its potency for evil." Dr. James Niven, Medical Officer of Health, Manchester: "If a number of cases of scarlet fever have appeared in any class or classes, the rooms occupied by these should be disinfected. This may also be usefully carried out in the case of diphtheria." Dr. A. Bostock Hill, Medical Officer of Health, Warwickshire: "I would again commend the absolute neces-

sity of disinfection of dwellings and bedding being taken as a routine procedure." Dr. H. Scurfield, Medical Officer of Health, Sheffield: "For dealing with recognizable human infections, the great thing is to have a comprehensive scheme, and for this purpose, we want * * * home visiting of notified cases by visitors on the lookout for other cases among the 'contacts,' visiting of workplaces where necessary, and as a result of these visits, disinfection and removal of defects." Dr. H. W. Baillie, Medical Officer of Health, Belfast: "This [disinfection] is one of the most important precautions for the prevention of infectious diseases, and unless it is thoroughly carried out all other measures must fail."

On this question of the transmission of infection by fomites, the committee appear to have fallen into the common error of assuming that because the aerial convection theory has been abandoned, all infection must necessarily be of a direct nature: *in medio tutissimus ibis* is a safe maxim to apply in discussions of this nature. The committee express the opinion that "terminal room disinfection as at present practised by the average Board of Health, has little effect in controlling the spread of infection and that it appears, in so far as figures are available, that the percentage of return cases is practically the same in those communities where disinfection is compulsory as in those where it is not required." This view is probably correct, though not for the reason which influenced the committee in arriving at it. Room disinfection "as practised by the average Board of Health" generally consists of fumigation with formaldehyde, a method which recent investigations have shown to be absolutely unreliable.

The *British Medical Journal*, as far back as 1894, when referring to the disinfection of rooms by fumigation, said: "On the ground even of economy there is no comparison between this obsolete process and a disinfectant spray; and while cases of renewed house infection are familiar to almost every medical officer in this country, we have Dr. Dujardin-Beaumetz's authority for saying that where the disinfectant spray has been introduced they are practically unknown in France."

ETIOLOGY AND DIAGNOSIS.

The Sero-Diagnosis of Pregnancy.[1]—Great interest has been aroused by the announcement that pregnancy could be determined by laboratory tests. One of the most interesting articles on the subject is by McCord, who describes: One half gram of the coagulated placenta or ¼ gram of desiccated placenta is placed in the parchment thimble. This thimble should be washed thoroughly just prior to use. Add to the placenta in the tube 1½ cc. of serum free from hemoglobin. Avoid any contact of placenta and serum with outside of thimble. As a further precaution rinse thoroughly on the outside. Place in dialyzing jar containing 10 to 20 cc. distilled water. A large test tube makes a suitable dialyzing jar. Add a layer of toluol to the surface of the water and to the thimble contents to prevent deterioration. In like manner prepare a control test in all respects similar except no placenta is added to the serum. This control is essential and no test is dependable without it. These tubes are tightly covered and kept at body temperature (incubator) for a period of 12 to 16 hours. At the end of that time the dialysates are tested with triketohydrindenhydrat. Boil continuously for one minute. If positive, an intense violet color appears during the boiling and remains. The amount of color is a relatively quantitative indication of the degree of positivity. Boil control in same way. Compare color of control and test. No case is to be considered positive unless the test is more positive than control. The color deepens on standing, so that the sharpest difference in degree of color appears after standing for about 15 minutes.

The value of the test lies not so much in the positivity of the test as in the relative negativity of the control. Contrary to Abderhalden, in animal work our controls were nearly always faintly positive, even when all mechanical sources of error were removed. This fact is very reasonable, for the blood contains amino groups in easily detectable amounts from digestive processes. Serum drawn at the height of food absorption contains more amino groups that are readily dialyzable, but even on starvation some serums give positive reactions after dialyzation. Further, in the case of pregnancy blood may be drawn just at the time of intra-corporeal digestion of chorionic villi from the patient's own placenta. In this case the digestion would continue extra-corporeally, and give rise to a positive test. Quite obviously the two thimbles used in dialyzing must be of relatively equal thickness, for a thin control tube would be readily penetrated by the small amount of contained amino groups, while in the presence of pregnancy even, the test, if made in a much

[1]Carey Pratt McCord, M. D Detroit, *Surg. Gynecology and Obstet.*, April, 1913.

thicker thimble, would with difficulty be penetrated and would give rise to questionable results. A test, to be positive, must, after removal of mechanical sources of error, give a more pronounced coloration than the control. The control may be negative, then any violet coloration in the test is an indication of pregnancy. Equal coloration of control and test is a negative indication. In our hands tests were made in the above manner, using as control not only the serum without placenta but placenta in distilled water and in using the desiccated placenta, the coagulated placenta of Abderhalden was used as a further control. Results are based only on laboratory experiments. These yielded about 95 per cent. of accurate tests. These we were able to follow up by autopsy and exhibition of the fetuses or the demonstration of non-pregnancy. Errors of technique account in the main for the remaining 5 per cent. However, in the presence of unquestionable pregnancy, negative tests have occurred in two experiments. The paucity of data from clinical work does not allow any records being included in the present paper. What we have, however, would suggest that the test is more accurate for human subjects than for animals, in that the controls are many times negative or only faintly positive in women, while in laboratory animals the blood serum normally dialyzes to the extent of giving positive findings in the controls. The decision between positive and negative tests is never doubtful in the human.

These observations are based on 240 tests under varied conditions and at different stages of pregnancy. Our findings lead us to conclude that the sero-diagnosis of pregnancy is both reliable and practical. The method has its limitations, and the technique requires great care. In the hands of the careful worker the method is of sufficient merit to prove of great value to the obstetrician and gynecologist.

Formaldehyde Vapor in the Vagina.[1]—Pinard recently presented to a meeting of the Paris Academy of Medicine on March 11th an instrument called a "formojector," by means of which the patient herself is able to administer a vaginal injection of formaldehyde vapor. The design of the apparatus Pinard attributed to Marcel Braunberger, who had discovered a method of producing the vapor without heat, simply by chemical reaction of formaldehyde solution on potassium permanganate. A mere pressure of the finger enables the patient to discharge into the vagina a sufficient quantity of formaldehyde vapor, which, irritating as it is to the eye and nasal membrane, has no such effect on the vaginal mucosa where it acts as a powerful antiseptic besides drying quickly all products of suppuration. Another excellent effect of this vapor on the vaginal and circumvaginal tissues is a tonic one and its use after labor often relieves ptosis to such an extent as to render unnecessary the subsequent use of a pessary. Pinard stated that he had gratifying results with this new apparatus in his gynecological clinic and pointed out its superiority to all syringes and other means of giving liquid injections, especially whenever it was advisable for the patient to treat herself at home.

[1] *Journal des Practiciens*, March 29, 1913.

TREATMENT.

Hay Fever.[1]—There is perhaps no affection more common, and yet less amenable to treatment, than hay fever. Known for a long time and treated without much success by the most varied therapeutics, this malady recurs with despairing regularity in persons who have had a first attack. It is especially frequent in England, Germany, the United States, and in the North of France, where it returns regularly each year. It appears in the spring when the meadows begin to flower—hence the name of hay fever.

It sets in suddenly, as everyone knows, by frequent attacks of sneezing, running from the eyes, abundant secretion from the nose, with swollen mucous membrane rendering breathing impossible. Frequently the affection is accompanied with fever and attacks of dyspnea resembling that of asthma. Rhinoscopic examination shows congestion of the mucous membrane covering the turbinated bones of the nose.

The exciting cause of the malady is still unknown. The oldest theories incriminated both the dust of the pollen, which irritated the mucous membrane and a special predisposition of the individual. Another theory incriminated a diathesis of which the strongest partisan was Guéneau de Mussy. For him and many others, it was a question of nervous hyperexcitability, of a special sensitiveness of the conjunctiva and the nasal mucous membrane.

At the present time, the neuro-arthritic theory is scarcely admitted. It is certain that there exists a special predisposition of certain individuals to contract hay fever, but it is not all: the *rôle* of dust and of the grains of pollen has been proved experimentally.

How do they act? asks Prof. Monneyrat. For certain authors the grain of pollen contains a tox-albumin, which, isolated and placed on the pituitary or ocular mucous membrane, determines a specific irritation. For others, as Helholtz and Cornil, the *rôle* of dust is quite different: they serve as vecteurs to microorganisms, which would be the real agents of hay fever. Thus might be explained the *rôle* of a neuro-arthritic diathesis. It would be simply that of an organism in state of receptivity for the same causal germs at the same period of the year—hence the periodic relapses.

[1] *Med. Press and Circular*, May 10, 1913.

Prof. Mouneyrat is inclined to adopt this theory—that hay fever is the result of an infection provoked by an unknown micro-organism transported at certain times of the year by dust or the pollen of flowers; either that this micro-organism multiplies on the dust or the pollen, or that at the moment of flowering of the hay it finds conditions favourable to its development. In other words, the true cause of hay fever is not, as was commonly supposed, the pollen of flowers, but an agent of infection carried by the pollen to the ocular, nasal and bronchial mucous membranes. This theory, borne out by recent facts, led him towards finding a true specific for hay fever.

At first he tried, internally, a large number of so-called antiseptics—salicylic acid, salol, phenacetin, etc. Quinine was the only drug which gave him satisfaction, yet incomplete and transitory. Possessing no action on the mucous membrane, its effect could only be explained by a microbicidal action—that it practically destroyed the causal agent of hay fever as it destroys that of malaria. It was thus that he was led to try other malarial agents, as arseniate of soda, Fowler's solution, cacodylate of soda, methylarseniate of soda, all of which gave some partial results. Hectine alone seemed to act like a charm, as in less than three days all the symptoms experienced by patients suffering from hay fever disappeared.

One patient, a chronic sufferer from hay fever, was cured in three days by 50 drops of hectine taken morning and evening before meals in a little water. Another who suffered from hay fever for fifteen years, and had tried every remedy, including serums, without relief, was ordered one pill of hectine night and morning. On the second day of the treatment all the unpleasant symptoms had disappeared. A third, a woman, had every spring a return of the malady. When seen there was intense congestion of the nasal and ocular mucous membrane and very disagreeable itching, while the sneezing and the nasal secretion were so abundant that she had to keep indoors. She was given 50 drops of hectine twice a day; the effect was almost immediate. After the first day of treatment sneezing and coryza ceased, the fever diminished, while the disagreeable frontal pain had disappeared. On the third day the patient was about as usual.

Hectine—a new arsenical preparation—may be given in the form of pills or solution. On the first day, 40 drops (one pill) are taken night and morning in a little water; on the second, third and fourth days, 50 drops (one pill) twice a day. After the fourth day the drug is taken only every second day until the bottle is finished.

Besides acting as a specific on hay fever, hectine increases the appetite, the strength and the weight of the patient.

The Treatment of Herpes.[1]—Herpes, in its simple form, says Blair, requires little except emollient applications and sedative washes described in the second paper. If there are crusts, remove them and apply an ointment of 10 grains calomel in an ounce of cold cream. Do not detach crusts too soon. Severe cases should be treated somewhat like eczema. *H. labialis* requires an application which will stick and be non-poisonous. The following is a good formula: Tr. benzoin comp., 2 fluid drachms; balsam Peru, 1 fluid drachm; lanolin, 5 drachms. *Herpes zoster* may be much relieved by the following: Morphin sulphate, 2 grains; zinc oxid, 2 drachms; powdered starch, 6 drachms. Cleanse the lesions and apply a soft bandage dusted full of the above; then cover with a tight bandage, and renew the dressing at infrequent intervals. If a dry dressing does not relieve, apply this:

℞ Ichthyolis, f 5ii.
Extracti opii, gr. x;
Adeps lanæ, 5iv;
Petrolati, 5ii.

Other remedies of value are veratrin (1:40) with extreme care, zinc ointment, morphin collodion (1:100), and applications of galvanism.

[1]T. S. Blair, M. D. *Med. Council*, Nov., 1912.

HYGIENE AND DIETETICS.

Summer Diarrhea in Children.—Cameron before the Section of Diseases of Children of the Royal Society of Medicine, London, held recently, concluded that neither direct overheating of the child, nor disturbance of the digestion, nor intercurrent digestive disorders, nor direct infection of the alimentary tract were sufficient of themselves to explain the rise in the mortality from diarrhea in summer, but that each played a part; that of all the deaths registered as due to diarrhea in the summer, a small fraction only was due to bacterial infection of the alimentary tract: that the progress of knowledge with regard to the prevention and treatment of diarrhea had not been a little hindered by regarding the problem from a standpoint too purely epidemiological.

The Use of Liquid Petroleum in Certain Conditions of Children.—Of late, and especially in Great Britain, many medical men have highly praised the administration of liquid petroleum in the treatment of intestinal stasis, both of adults and of children.

Pritchard, writing in the *Archives of Pediatrics*. March, 1913, has this to say: "Breaches of continuity in epithelial surfaces must predispose to bacterial invasion and general infections. I have several times noticed the same untoward sequence of events. I mean the determination of a colitis tormina, etc., when the meconium has been precociously expelled into the amniotic fluid during intrauterine life. Meconium should be treasured up in the bowel and regarded as one of the best

friends the young infant can possess. So important to my mind is the function of meconium that when it is deficient in quantity or prematurely expelled by accident or undue interference, I always take care that it is replaced by an efficient substitute. The best substitute I have been able to discover so far is without doubt petroleum emulsion. Petroleum is a good lubricant and like meconium is not assimilated by the epithelial cells and thus not reduced in bulk as it descends to the bowel, that is to say, it reaches the rectum intact. It is physiologically an inert substance; it is protective, lubricating and soothing. In fact, so satisfactory has its administration proven that I now give it in all cases in which the infant suffers from tormina, entero-spasm or dys-peristalsis. When prepared according to the following formula I find infants take it well: Liquid Petroleum Brit. Pharm. 20 drops, Benzoic Acid 1/32 grs., Saccharin 1/32 gr., Oil of Cinnamon 1/16 drop, Decoc. of Irish Moss sufficient to produce one teaspoonful. Dose: a tea to a tablespoonful from three to six times a day. I would here utter a word of caution against the indiscriminate use of some of the largely advertised petroleum emulsions, partly for the reason that their flavoring and method of manufacture are not calculated to benefit infants, but chiefly because they may contain such supplementary bodies as hypophosphites which are not required by infants and which cannot be safely given, except in very small doses."

Dr. George Sutherland, in a book just brought out on diseases of childhood, recommends petroleum emulsion for the treatment of mucous colitis and in the treatment of obstinate constipation.

GENERAL TOPICS.

Drug Trade to have Exhibition and Conference in New York in October.—Although plans have been under way for some time, formal announcement has just been made of a Drug Trade Exhibition and Conference to be held at the New Grand Central Palace, New York, from October 2nd to 9th, 1913. It is to be held with the endorsement and cooperation of such societies as the New York State Pharmaceutical Association, National Pharmaceutical Society, Greater New York Pharmaceutical Society, Retail Druggists' Protective Association of Greater New York, New York County Pharmaceutical Society, The Brooklyn League, New York Rotary Club, New York Deutsche Apotheke Verein.

A wide variety of very interesting exhibits will be shown by manufacturers, wholesalers, jobbers and specialty houses in the drug and allied trades, many of which have already qualified and been assigned space. All exhibitors desiring may compete for prize awards which will be given for prepared foods, crude drugs, malted milk preparations, fermented milk preparations, confections, malt extracts, medicinal, mineral, soda and spring waters, table beverages, candies, medicinal wines, infant foods, cosmetics, dentrifices, perfumeries, confectionery, patent and proprietary medicines, crutches, artificial limbs, grape juice, soda fountains, pharmaceutical apparatus, flavoring extracts, fruit juices, etc.

The Long Island Drug Club, under whose auspices the exhibition and conference has been organized, has selected an unusually important Board of Awards, including Dr. George C. Dieckman, Professor, Department of Pharmacy, Columbia University, N. Y., Chairman; Dr. H. V. Arny, Professor, Department of Chemistry, Columbia University, N. Y.; Hon. Thomas Darlington, Ex-Commissioner, Health Department, New York City; William Mansfield, Phar. D. M. A., Professor of Biology, Vegetable Histology and Pharmacognosy, Columbia University, College of Pharmacy, New York; Dr. Joseph Kahn, Phar. D., Professor of Chemistry, Brooklyn College of Pharmacy, Brooklyn, New York; Elias H. Bartley, M. D., Professor Long Island College Hospital, Brooklyn, New York; John C. Olsen, A. M., Ph. G., Professor of Analytical Chemistry, Polytechnic Institute, Brooklyn, New York; H. Edwin Lewis, M. D., Editor of *American Medicine;* Otto Raubenheimer, Ph. G., Editor, *Practical Druggist*, New York City; John R. Wall, Ph. G., President, National Pharmaceutical Society, and Member New York State Board of Pharmacy; Louis F. Crasson, M. D., formerly Analytical Chemist of the Solvay Process Company of Syracuse, New York, and International Chemical Company of New York.

Hon. Herman A. Metz is chairman of the conference to be held in conjunction with the exhibition. This conference is expected to be productive of beneficial results to the entire drug trade. It will be participated in by representatives of all druggists and pharmaceutical societies of standing throughout the State. Prominent men in the medical and pharmaceutical professions will address the various sessions of the conference, for which an excellent program of interesting papers and discussions is being arranged. A betterment of conditions in the drug trade should result from this conference, particularly in the matter of the relations between the druggist and the physician on the one hand and between the druggist and the manufacturer and wholesaler on the other.

The Drug Trade Exhibition and Conference is of a philanthropic nature in that any profits accruing to the principal promoters, the Long Island Drug Club, which has guaranteed a fund to meet all expenses, will be devoted to the welfare and betterment of the drug trade throughout the State.

Cystogen

$C_6H_{12}N_4$

A preferred product of hexamethylene tetramine remarkably free from irritating properties.

PHYSIOLOGICAL ACTION

Genito-urinary antiseptic and uric-acid solvent in doses of gr., V-X t. i. d.; increases the excretion of urine and of uric-acid. It causes the urine to become a dilute solution of formaldehyde with antiseptic properties. Specially valuable as a diuretic and urinary-antiseptic in *cystitis, pyelitis, phosphaturia, before surgical operation on the urinary tract; during the course of infectious diseases to prevent nephritis; and as a solvent and eliminant in rheumatism and gout.*

When given in large doses, gr. X to XV, four times daily it is found in the saliva, secretions of the middle ear and nose, cerebrospinal fluid, bile; in short, in practically all secretions and excretions of the body, and hence its use as an antiseptic is indicated in *Rhinitis, Otitis Media, Sinusitis, Bronchitis, Influenza* and many other conditions which will at once occur to the clinician.

Supplied as

Cystogen—Crystalline Powder.
Cystogen—5 grain Tablets.
Cystogen-Lithia (Effervescent Tablets).
Cystogen-Aperient (Granular Effervescent Salt with Sodium Phosphate).

Samples and literature on request

CYSTOGEN CHEMICAL COMPANY
515 Olive Street, St. Louis, U. S. A.

"I Wonder How Much Sterilization This Catgut Has Received?"
If it is
"VanHorn" Catgut

it has been subjected to a process involving five distinct steps, each of which might well be considered complete in itself; three sterilizations before sealing the tube and the fourth and fifth after the tube is sealed (in a steam pressure sterilizer for one hour on different days at 25 pounds).

The "VanHorn" Process enables the painstaking surgeon to eliminate the suture not only as a *probable* but as a *possible* source of infection from tetanus, anthrax and all other organisms.

Therefore, the operating surgeon who uses "VanHorn" Catgut *protects* his *results*—and *safeguards* his *reputation.*

VAN HORN & SAWTELL

NEW YORK, U. S. A.
15-17 East 40th Street

AND

LONDON, ENGLAND
31-33 High Holborn

AMERICAN MEDICINE.

A JOURNAL DEVOTED TO THE WELFARE AND PROGRESS OF THE AMERICAN PHYSICIAN.

"Owned, controlled and directed by physicians in active practice."

PUBLISHED BY
THE AMERICAN MEDICAL PUBLISHING CO.

PUBLICATION OFFICES:
189 COLLEGE STREET, BURLINGTON, VT.

NEW YORK OFFICES:
84 WILLIAM STREET, NEW YORK CITY.

H. EDWIN LEWIS, M. D.....*Managing Editor*
WM. T. HANSON.....*Business Manager*
84 William St., New York City.

Subscription Price, One Dollar a Year in Advance. Single Copies, 15 Cents.

POSTAGE in the United States, Mexico, Hawaii, Guam, Porto Rico and the Philippines, free; foreign postage, 50 cents. Subscriptions may begin at any time. Volumes end with the last issue of December.

ORIGINAL PAPERS.—Articles are accepted for publication with the understanding that they are contributed solely to this journal. Brief clinical papers (2,000 words or less) are especially valued.

CORRESPONDENCE on all matters of clinical interest, particularly with reference to therapeutics, will be welcomed. Unobjectionable questions concerning formulas, treatment, etc., will receive attention in the department of Treatment.

COPYRIGHT.—Matter appearing in *American Medicine* is covered by copyright, but usually no objection will be made to the reproduction of anything appearing in its columns if the author's consent is obtained and proper credit is given.

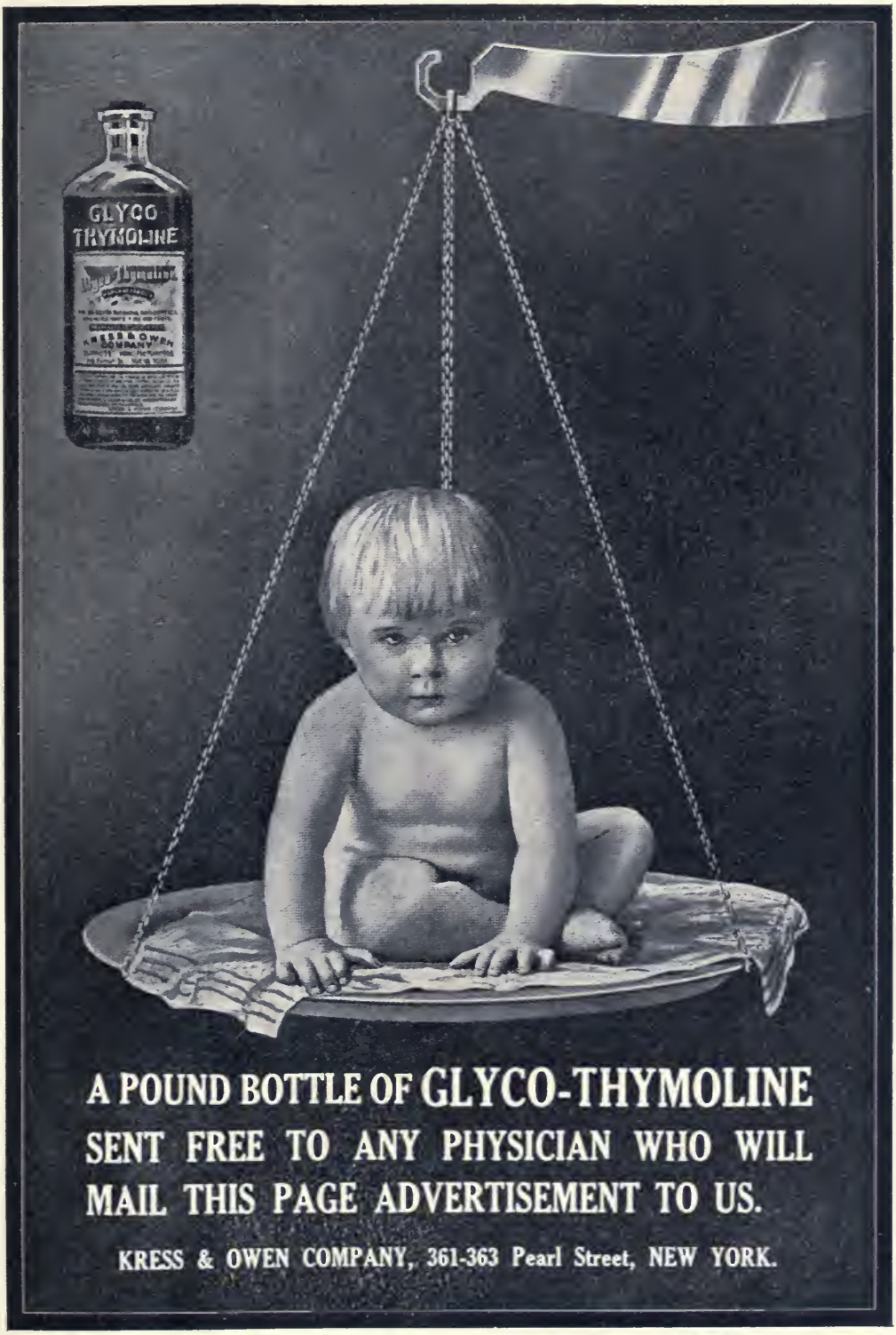
ADVERTISEMENTS.—Advertising forms go to press 10 days in advance of the date of issue. Therefore, in sending in copy, time should be allowed for setting up advertisements and for the sending and return of proofs. Advertising rates will be furnished on application.

CHANGE OF ADDRESS.—In ordering a change of address it is important that both the old and new address be given.

REMITTANCES.—Remittances should be made by check, draft, registered letter, money or express order. Currency should not be sent unless registered. Stamps in amounts under one dollar will be accepted. Make all checks, etc., payable to American Medical Publishing Company.

INDEX OF ADVERTISERS

	PAGE
Abbott Alkaloidal Co.	60
Anasarcin Chemical Co.	51
Anheuser-Busch	37
Approved Auto Specialties Co.	43
Automobile Tire Co., Inc.	43
Bannerman & Co., Wm.	12
Barrett Mfg. Co.	35
Bolton Chemical Corp.	27
Bovinine Co.	9
Breitenbach, M. J., Co.	15
Bristol-Myers Co.	57
Brown Scientific Tube Co.	42
Burnham Soluble Iodine Co.	30
Campho-Phenique Co.	3
Chesebrough M'f'g. Co.	39
Chicago Eye, Ear, Nose & Throat College	59
Chinosol Co.	7
Clysmic Spring Co.	29
Coca-Cola Co.	53
College of Physicians & Surgeons of Boston	59
Coward, James S.	31
Cystogen Chemical Co.	17
Denver Chemical Mfg. Co.	14
Dios Chemical Co.	11
Drug Trade Exhibition and Conference	40
Emery M'f'g. Co.	43
Etna Chemical Co.	10
Farbwerke-Hoechst Co.	7
Farwell & Rhines	57
Fellows' Co. of New York.	9
Fougera, E. & Co.	4th page cover
Fries Bros.	38
Fritzsche Brothers,	3rd page cover
Glen Springs Sanitarium	57
Goodwin Corset Co.	27
Hance Brothers & White	52
Hendee M'f'g. Co.	44
Heinz Co., H. J.	49
Henry Pharmacal Co.	13
Hoffmann-La Roche Chemical Works	6
Hotel Woodstock	55
Hydrox Chemical Co.	39
Johns-Manville Co., H. W.	57
Knoll & Co.	28
Kress & Owen Co.	19
Lambert Pharmacal Co.	16
Lehn & Fink	1
Marks, A. A.	5
Marvel Co.	34
Medico-Chirurgical College of Philadelphia	55
Merrell, Wm. S., Chemical Co.	21
Morgan, T. C. & Co.	30
Mudlavia Sanitarium	59
Nestle's Food Co.	16
N. Y. Pharmaceutical Co.	5
N. Y. Real Estate Security Co.	38
Od Chemical Co.	24
Organic Chem. Mfg. Co.	45
O'Sullivan Rubber Co.	25
Packer Mfg. Co.	29
Parke, Davis & Co.	2nd page cover
Peacock Chemical Co.	4
Pomeroy Co.	31
Pond's Extract Co.	24,55
Postum Cereal Co., Ltd.	23
Purdue Frederick Co.	1
Pure Gluten Food Co.	59
Radium Chem. Co.	12
Rainier Mine Co.	32
Reinschild Chemical Co.	54,57,59
Rio Chemical Co.	2,10
River Crest Sanitarium	59
Saxlehner, Andreas	28
Schering & Glatz	3
Sharp & Dohme	35
Sherman, G. H., M. D.	36
Smith, Martin H., Co.	2, 57
Storm, M. D., Katherine L.	4
Strong, F. H., Co.	10
Sultan Drug Co.	2
Trommer Co.	33
United States Wrench Co.	42
Valentine's Meat Juice Co.	4th page cover
Vanadium Chemical Co.	13
Van Horn & Sawtell.	1st cover, 17
Wallau, Geo. J., Inc.	3rd page cover 10, 46, 47, 52
Weissfeld Bros.	59
Welch Grape Juice Co	8


GLYCO
THYMOLINE
A POUND BOTTLE OF GLYCO-THYMOLINE
SENT FREE TO ANY PHYSICIAN WHO WILL
MAIL THIS PAGE ADVERTISEMENT TO US.
KRESS & OWEN COMPANY, 361-363 Pearl Street, NEW YORK.

MEDICAL PROGRESS.

Dermatoses.

Dermatoses or skin diseases are affections characterized particularly by eruptions of various kinds.

This definition may have satisfied the earlier practitioners, but modern dermatologists have determined to gain a more thorough knowledge of these eruptions and their causation.

It has been discovered that the micro-organism alone does not cause the lesion, there must also be a favorable soil. There is an entire group of diseases which originate from auto-intoxication and are caused by inadequacy of the renal function, and in which the skin lesions arise from toxic reabsorption of the products eliminated in urine. These affections are: acid dyscrasia, oxaluria, gall stones, obesity, diabetes, gravel and gout.

It has been shown by Leredde that the blood is affected by these reabsorbed toxic products which are ultimately excreted by the skin. Thus originate lichen simplex, prurigo, herpes, erythema, rashes, urticaria, vitiligo. The nervous system is affected secondarily and reacts on the cutaneous lesion, increasing its severity.

These diseases are then cases of genuine skin poisoning from auto-intoxication.

What is the rational treatment of these conditions?

It is neither the urea nor the uric acid that is directly responsible for these skin lesions, it is the much more complex poisons which are formed in a diseased organism and retained in the system owing to organic or even functional disturbance of renal elimination. As these poisons consist of incompletely oxidized products, it is rational to increase the oxidizing power of the blood by means of the Urodonal treatment. These products will thus be oxidized and converted first into uric acid, then into urea, which the kidneys, having had their permeability restored by Urodonal, can easily eliminate.

General treatment is consequently much more important than the local treatment of the skin lesions, and it is here represented by Urodonal, the most efficient renal purifier.

Hot Weather and Children's Intestinal Complaints.

In the summer months the physician is frequently called upon to treat children suffering from intestinal troubles. Most of these disorders are nutritional in character and the train of symptoms displayed is induced by the irritation or inflammation of the mucous membrane of the gastro-intestinal tract by the acid condition of the succus entericus, by the inhibition of the intestinal enzymes, by the intestinal toxemia due to the absorption of the products of decomposition, and by the injury to the digestive cells. In the treatment of these disorders the physician's skill is often taxed to the limit in devising a suitable diet to meet each individual case, and he must furthermore carefully select an intestinal antiseptic which will aid the dietetic treatment by neutralizing the products of decomposition, thus making the intestinal tract as aseptic as possible, through arresting the development of the micro-organisms present which assist in the production of decomposition products. To be of value an intestinal antiseptic should be:

(1) Non-irritating, so that the already irritated and inflamed mucous membrane be not further aggravated;

(2) Non-toxic;

(3) Capable of arresting the development of the micro-organisms which produce decomposition;

(4) Of such character that it may be administered in concentrated solution or in large doses sufficiently powerful to efficiently perform its antiseptic action;

(5) Non-objectionable as to taste, etc.

Thiocol Roche, a derivative of guaiacol containing 52% of guaiacol, is non-irritating, non-toxic, of a pleasant, bitter taste and readily soluble in water. Unlike creosote and guaiacol or their usual derivatives, it may be administered for months and in concentrated form without any by-effects. It will efficiently inhibit the growth of the micro-organisms and neutralize the effect of the toxemia. Thiocol Roche can be given in large doses to children with benefit and safety. As an intestinal antiseptic the use of the tablets or powder is specially recommended. Thiocol Roche can be obtained from any druggist or jobber. The Hoffmann-La Roche Chemical Works, 440 Washington Street, New York, supply literature on request.

Pyxol.

It might appear an anachronism that substances as powerful as bichloride of mercury or carbolic acid in germicidal power could be entirely devoid of their toxic and irritating properties. Facts based upon the most exacting bacteriological standards however show incontrovertibly that Pyxol is entitled to the claim of being such a substance. It will be found as efficient as either of the above mentioned disinfectants with the important advantage of not injuring the tissues or causing toxic effects from absorption. Withal it is very cheap, a solution equal in bactericidal efficiency to the hospital strength of carbolic acid, costing less than one-third of a cent a gallon. Its scope of usefulness as a disinfectant embraces the entire field of modern surgery, midwifery—such as preparing the field for operation, sterilizing of the hands, cleansing of wounds, and for vaginal and uterine douching, etc. An interesting booklet describing the Rideal-Walker method of controlling efficiency and cost will be gladly sent upon request, to any physician applying to the Barrett Manufacturing Co., Pyxol Dept., 17 Battery Place, New York City.

NEGLECT OF MENSTRUAL DISORDERS NECESSITATES MANY A SURGICAL OPERATION

The functional derangements of the female generative organs seldom require operative treatment if taken in time. They are amenable to medical treatment such as is afforded by

GENITONE

This utero-tonic cordial owes its exceptional therapeutic power to the rational formula and the definite special action of each of the incorporated drugs used in the *fresh* state—a vitally important feature.

Genitone is composed of Viburnum Prunifolium, Hydrastis, Pulsatilla, Passiflora, Senecio.

Clinical experience is expressed in these quotations.

"The various abnormal conditions which often accompany the establishment of menstruation are surely met by Genitone, especially when there are pains, either spasmodic or continuous, nervousness, headache, scant flow, intermittent or continuous with or without fever."

"I have practically discarded all other viburnum preparations and use Genitone exclusively in my practice, with better results than I have been able to obtain with any other remedy."

"As a preventative of miscarriage or apparent premature labor, it will be of excellent service, provided the membranes are intact."

"As a uterine tonic and restorative following miscarriage or childbirth, this remedy is unexcelled."

"In my own practice I have always used Genitone and find it perfectly meets all requirements as a regulator of functions."

"I have used Genitone in several cases of dysmenorrhea with perfect success."

"For the derangement incident to menopause, I find Genitone always to be a successful and satisfactory remedy."

As the full value of Genitone can hardly be demonstrated by a small quantity, we will send prepaid to any physician who has never prescribed it one only full size bottle on receipt of 50 cents to cover the delivery and packing expense. The price of pint bottles is $1.00. Genitone is carried in stock by leading druggists everywhere.

THE WM. S. MERRELL CHEMICAL COMPANY
CINCINNATI

Functional Disturbances of the Liver.

When one stops to think of the work the liver is called upon to do in the human economy and the excessive burden so frequently placed upon it by errors of diet, faulty methods of living, etc., it is really surprising that this great organ—the largest gland of the body—does not become deranged more often than it does.

Clinical study has shown, however, that the liver is much more subject to functional disturbance than is generally realized. The opinion has been growing for some time, therefore, that not a few obscure conditions of the intestines, particularly those grouped under the term "auto-intoxication," should be attributed to sluggishness or torpidity of the liver processes.

In view of this there is an increasing demand for a cholagogue that can be relied upon to stimulate the functional activity of the liver without at the same time producing a degree of catharsis that is neither necessary nor desired. Many and various are the drugs that have been tested with this in view, but practically the only one that has met the situation is that long known and widely used preparation of Chionanthus Virginica, Chionia.

This product is exceedingly effective as a stimulator of hepatic processes, and administered in proper dosage it is not only an effective cholagogue, but what is especially important, it can be relied upon to produce its effects without causing undue activity of the bowels. The prompt influence of Chionia on hepatic functions consequently gives it a broad range of usefulness, not only in overcoming liver disorders themselves, but also the various affections that are dependent on hepatic deficiency or derangement. It is indicated in acute and chronic hepatitis, catarrhal jaundice or cholangitis, biliousness, chronic intestinal catarrh, intestinal putrefaction, auto-intoxication and all maladies caused or aggravated by derangement of the liver.

The significant feature attending the use of Chionia is that it always acts by promoting or augmenting natural processes—never by superseding them. It belongs, therefore, to the class of remedies aptly designated as physiologic, for its whole action is to restore and maintain normal or physiologic conditions of the liver.

The Prevention of Typhoid Fever.

No finer work in biological science has been done in the last decade than that showing the possibility of preventing typhoid fever and cutting short epidemics of this disease by the use of the typhoid bacterins. While much of the credit for this belongs to our distinguished English confrere, Sir Almroth Wright, its practical possibilities have been most clearly demonstrated by the splendid work of Major Russell and his associates in the U. S. Army. It is now one of the demonstrated facts that typhoid fever can be prevented, in the vast majority of cases, by the early application of this prophylactic measure.

The health departments of New York, Chicago and other large cities are urging everybody to be immunized against typhoid fever just as they are now being vaccinated against smallpox, and certainly whenever a case of typhoid appears in any community, there should be a wholesale vaccination against it. The physician should be ready to do this work—should promote interest in it.

The Abbott Laboratories of Chicago are prepared to supply typhoid prophylactic of superior quality. This progressive house produces and markets an extensive line of serums and bacterins. Its serums are produced by the Slee Laboratories, and include diphtheria antitoxin, tetanus antitoxin, antistreptococcus serum, antimeningitis serum, etc. These laboratories also produce the Slee smallpox vaccine, which has been in constant use in the U. S. Army since 1898 and has recently been adopted by the Chicago Health Department.

The Abbott Laboratories manufacture in their own beautiful laboratories in Ravenswood an extensive line of bacterins, which are unexcelled as to quality and reliability. Write the Abbott Laboratories (The Abbott Alkaloidal Co., Ravenswood, Chicago) for descriptive booklet giving full information concerning their products of this class.

Comfortable Catharsis.

As a rule, the more efficient the cathartic, the greater the discomfort to the user. The griping and nausea following the older cathartic pills and fluid preparations, are well known and need no one to bring the pictures before the mind. In Prunoids, however, we have an exceedingly pleasant remedy that is as surely effective, as it is devoid of unpleasant effect when its action has been secured. The removal of intestinal obstruction after excessive eating, or from sluggish, incompetent peristaltic action of the bowel, is one of the delightful and prompt offices of Prunoids. The cathartic action is secured in six or eight hours, and the evacuations are not only remarkably complete but entirely painless. The feeling of relief and comfort is pronounced and there being no unpleasant after-effects, patients welcome the remedy with decided satisfaction. There is usually a slight but decided aperient action following the cathartic action, which lasts several days, and tends to promote permanent regularity in the movements of the bowels. This is somewhat different from most cathartic or laxative remedies, and is a prominent reason for the popularity of Prunoids with physicians and their patients who have used the remedy. Samples will be sent to any physician unacquainted with Prunoids, by applying to the Sultan Drug Company, Saint Louis, Mo.

Patients Require

Nourishment

In addition to medicinal and other therapeutic measures.

"What wholesome combination of the **four** essential food elements —protein, carbohydrates, fat and salts—can be prescribed which is easy of assimilation and, hence, will **save** the patient **unnecessary digestive** and **metabolic energy?**"

For over fifteen years these requirements have been met by

Grape-Nuts

FOOD

Made of whole wheat and malted barley—handled in all its manufacturing processes by special automatic machinery—under the most scrupulous cleanliness—Grape-Nuts holds a peculiarly envious place on the menus of hospitals, sanitariums, and in private homes.

Among the advantages in Grape-Nuts is the fact that it helps to make other associated foods more easily absorbed, especially the carbohydrates of every kind, on account of the apparent "inducement" it seems to hold out to the enzymes of the intestinal tract, to assume their amylolytic function, with promptness and thoroughness.

The small amount of natural fat in Grape-Nuts allows for the gauging of this element by modifying the milk, always used with the food, as to its percentage of cream.

The **Clinical Record,** for Physician's bedside use, together with samples of **Grape-Nuts, Instant Postum** and **Post Toasties** for personal and clinical examination, will be sent on request to any Physician who has not yet received them.

POSTUM CEREAL CO., LTD., BATTLE CREEK, MICH., U. S. A.

To Promote Digestive Tone.

When the functional activity of the digestive tract has been impaired by concomitant diseases, and on this account the nutritive processes are unable to serve the body effectually, Seng is always indicated. This preparation is derived from Panax (Ginseng) and is pleasant to take as well as promptly active in enticing an appetite, gently stimulating the flow of digestive secretions, and giving tone to the organs of digestion generally. Seng acts along the line of "physiological suggestion" rather than as a substitute for the digestive ferments. In other words, it promptly stimulates the secretory activity of the stomach and intestines, so that there is a speedy return to normal physiological functionating. The dose, one to two teaspoonfuls, may be administered before or during a meal. When given alone, it is preferably administered in a small amount of water. The significance of loss of appetite as a forerunner of many serious diseases, is well appreciated by the astute diagnostician and clinician. It is in such instances that Seng is valuable in greatest measure as a dependable prophylactic. By stimulating flagging digestive and assimilative functions in the beginning, it often prevents what would surely be serious and intractable nutritional disorders later.

Prepare the Babies for Hot Weather.

During the month of June it is not a bad plan for the physician to take mental "stock" of the babies under his care, especially such as are bottle-fed, with the general idea of recommending such treatment as will tone up and vitalize those whose nutrition may be below par, so that they may enter the trying summer months in the best possible condition to ward off or withstand the depressing influences of extreme heat or the prostrating effects of the diarrheal disorders of the heated term.

Careful attention to feeding is, of course, a *sine qua non* and the details of the infant's nourishment should be carefully investigated and regulated. But this is not all. Many bottle-fed babies are below standard from a hematologic standpoint. The marasmic anemic baby deserves special attention in the way of building up and restoring a circulating fluid which is deficient in red cells and hemoglobin. In the entire Materia Medica there can be found no direct hematic quite as suitable for infants and young children as Pepto-Mangan (Gude). In addition to its distinctly pleasant taste, this hemic tonic is entirely devoid of irritant properties and never disturbs the digestion of the most feeble infant. Being free from astringent action, it does not induce constipation. A few weeks' treatment with appropriate doses of Pepto-Mangan very frequently establishes sufficient resisting power to enable the baby to pass through the hot summer without serious trouble, gastro-intestinal or otherwise.

Muller, of the Deaconness Hospital, Halle, (*Wien. klin. Woch.*, 1912, No. 25), especially recommends melubrin as an antipyretic in acute and chronic polyarthritis and in pneumonia and sciatica.

SANMETTO FOR GENITO-URINARY DISEASES.

A Vitalizing Tonic to the Reproductive System.

Specially Valuable in Prostatic Troubles of Old Men—Irritable Bladder—Cystitis—Urethritis—Pre-Senility.

SOOTHING — RELIEVING — RESTORING.

DOSE:—One Teaspoonful Four Times a Day. OD CHEM. CO., NEW YORK.

Beware of the so-called Elixir Compounds claiming to be "the same thing" or "just as good" if you do not wish to be disappointed.

POND'S EXTRACT

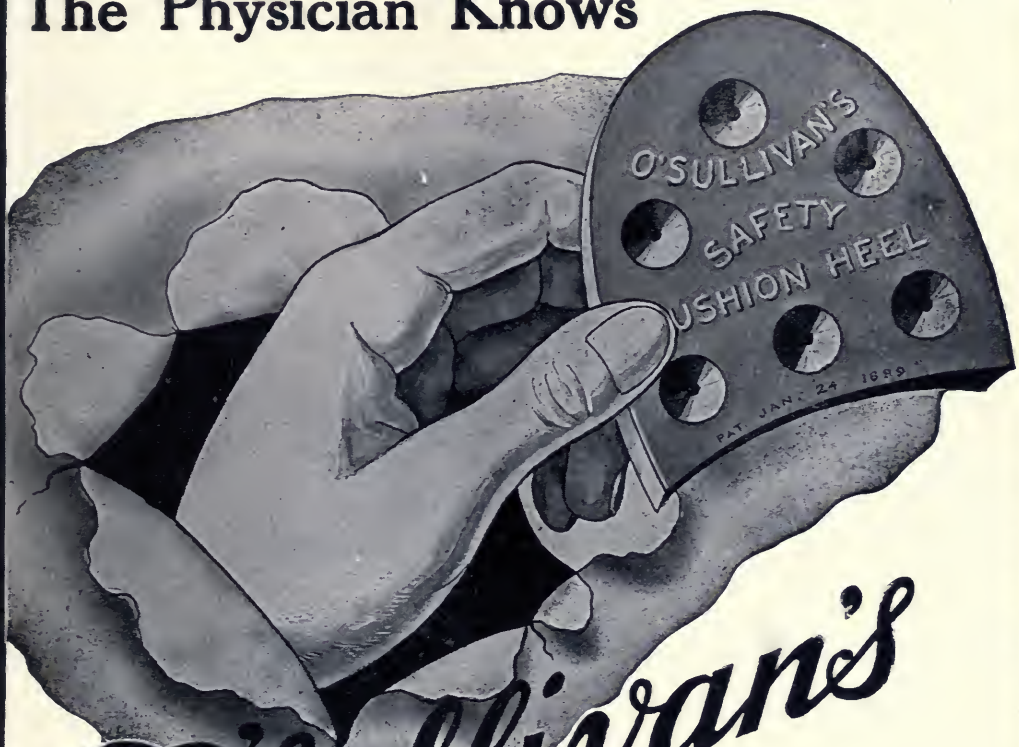
To allay the itching, smarting and burning of the heat rashes, there is no lotion more effective than Pond's Extract, full strength—or diluted with water equal parts.

Cooling, soothing and anti-pruritic, Pond's Extract is invaluable in the treatment of hives, sunburn, chafing, ivy-poisoning, etc.

POND'S EXTRACT CO., New York and London

PRICKLY HEAT

The Physician Knows



O'Sullivan's HEELS

of New Live Rubber

Have a Definite Hygienic Utility

HE KNOWS that walking with ordinary heels of leather on hard, unyielding surfaces produces a continual jarring or jolting of the spinal column.

HE KNOWS the harm and injury that all too often attend such repeated jarring or jolting.

HE KNOWS how Nature tries to reduce jarring of the delicate spinal structures to a minimum by placing cartilaginous cushions—shock-absorbers—between the joints.

HE KNOWS how conditions that are irremediable make it essential to supplement Nature's efforts by wearing heels of resilient, shock-absorbing material.

HE KNOWS how well O'Sullivan's heels meet the hygienic needs of the situation and help nature to maintain comfort and health.

O'SULLIVAN RUBBER CO., 131 Hudson St., New York City

The Treatment of Rheumatic Ailments.

The rheumatic diseases, caused as they undoubtedly are by irritating substances in the blood and tissues, supply the most gratifying evidence of the absorbent and eliminative properties of Burnham's Soluble Iodine. Many cases, uninfluenced by former treatment, especially rheumatoid arthritis and gout, will show prompt improvement under the use of Burnham's Soluble Iodine.

Physicians who have had an opportunity of observing the beneficial action of Burnham's Soluble Iodine recommend it highly in all forms of rheumatism, gouty enlargements, synovotis, neuralgia, and in the uric acid diathesis, for they have invariably found it to be the best eliminator of uric acid at their command.

Attention is called to its local as well as internal use in rheumatism. A 10% solution applied on a bandage is of signal service in reducing the swollen and painful joints. It is also often applied to advantage by cataphoresis. Burnham's Soluble Iodine can be relied upon to afford marked relief even when lithia and other preparations fail completely.

For valuable data on the use of iodine, address: Burnham Soluble Iodine Co., Auburndale, Mass.

A Natural Medicated Soap.

Rainier Natural Soap is offered to the medical profession as a reliable and valuable agent in the treatment of cutaneous affections, especially in cases where a soothing, healing and cooling application is necessary.

This soap is claimed to contain no drugs or chemicals. It is composed of about 85 per cent. refined mineral Saxonite powder and 15 per cent. pure soap; Saxonite is a natural mineral powder and is simply refined before being combined with pure soap to make Rainier Natural Soap.

Many physicians report satisfactory results from the use of this soap in cases of eczema. Dr. A. C. Cowperthwaite, M. D., Ph. D., LL. D., reports that he has cured and seen cured, apparently more cases of eczema with it during three years than he has seen cured by other remedies in the previous ten years. Dr. Durand states that he has used the soap in several cases of eczema of the scalp with very satisfactory results and incidentally says that this is the first remedy he thinks of in all diseases of the skin.

Full size cakes of Rainier Natural Soap, and sample jars of Saxonite Powder, are sent to the profession upon request. Rainier Mine Co., Pearl Street, Buffalo, N. Y.

Drug Trade Exhibition and Conference

New Grand Central Palace

46th to 47th Streets on Lexington Ave.

New York City

October 2nd to 9th, 1913

UNDER THE AUSPICES OF THE LONG ISLAND DRUG CLUB.

To be held with the endorsement and co-operation of the following societies:

New York State Pharmaceutical Association.
National Pharmaceutical Society.
Greater New York Pharmaceutical Society.
Retail Druggists' Protective Association of Greater New York.
New York County Pharmaceutical Society.
The Brooklyn League.
New York Rotary Club.
New York Deutsche Apotheke Verein and others.

A wide variety of very interesting exhibits will be made by manufacturers, wholesale jobbers, and specialty houses in the Drug and Allied Trades.

Diplomas and Medals will be awarded by competent judges under the supervision and censorship of a committee on prize awards, composed of thoroughly representative professional men, prominent throughout the country.

All organizations of druggists and all pharmaceutical societies of standing throughout the State of New York, will co-operate in making the Conference of great interest and value to the drug trade generally.

Physicians, Surgeons, Hospital and Medical Institute Authorities should write for guests' complimentary tickets of admission.

For further particulars, diagrams, rates for booths, etc., address,

DRUG TRADE EXHIBITION AND CONFERENCE
New Grand Central Palace
New York City

507

American Medicine

H. EDWIN LEWIS, M. D., *Managing Editor.*
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.
Copyrighted by the American Medical Publishing Co., 1913.
Complete Series, Vol. XIX, No. 8.
New Series, Vol. VIII, No. 8.

AUGUST, 1913. $1.00 YEARLY in advance.

The therapeutic virtues of the pancreatic ferments were flashed across the startled medical world a few years ago as the result of the researches of Dr. Beard, of Edinburgh. Dr. Beard, it may be stated, though not a medical man, is a Doctor of Science at Edinburgh and holds the Chair of Embryology and Vertebrate Zoology in Edinburgh University. Quite recently—to be precise, in the *Medical Record* of March 29, 1913, and the *Biologisches Centralblatt* of March 20, 1913—Dr. Beard published a small piece of experimental work. On the occurrence of dentro-rotatory albumins in organic nature, in the course of which he gave utterance to the following prediction: "Since the organisms underlying the chief tropical diseases, such as malignant malaria, trypanosomiasis, sleeping sickness, yellow fever, relapsing fever, Kala-azar, etc., are, so far as these attack human beings, asexual generations, it follows that the natural means of destroying the organisms of such tropical diseases, and of curing the patients, are the use *in combination* of the powerful pancreatic ferments, trypsin and amylopsin, as represented by the '1912' Fairchild injections."

This suggestion has apparently taken root in the mind of Major F. W. Lamballe, of the Royal Army Medical Corps, serving in Burma, a country in which a form of trypanosomiasis known as "Surra," is very prevalent among horses. Major Lamballe, in association with Captain Gelbart, of the British Army Veterinary Corps, began experiments in the treatment of horses suffering from Surra, in April last. His first cases were sprung upon him before he was adequately prepared for the work, so that his dosage was necessarily limited at first. Under date of May 4th, writing from Maymyo, Burma, Major Lamballe publishes—or rather Dr. Beard publishes for him—a preliminary note on the effect of enzymes in the treatment of Surra.[1] Three mules suffering from the disease were placed under the enzymes treatment. They were relapse cases which had been treated previously with atoxyl. On April 24th each mule received hypodermically a dose of 375 units of trypsin plus 1000 units amylopsin (Fairchild preparations) the peripheral blood of each then showing *Trypanosoma evansi* in great numbers. On 26th April the same dose was repeated. The blood still showed *T. evansi* in great numbers. On 27th April, trypanosomes were not discoverable in the fresh blood films. Stained films showed trypanosomes in various stages of disintegration. April 28th no trypanosomes in the peripheral blood. The note is accompanied with figures showing the destructive effect of the

[1]Trypanosomiasis and Surra, By F. W. Lamballe, Major R. A. M. C., with an explantory note by J. Beard, D. Sc. Edinburgh: Otto Schulze & Co. Price 3d (6 cents). Issued June 9th, 1913.

ferments on the trypanosoma. It should be mentioned that two similar cases were treated simultaneously with arsenic injection—"presumably atoxyl," according to Dr. Beard—as controls. In spite of this treatment one control died on the 8th, and the other was *in extremis* on the 11th, but the treated mules were all alive. Major Lamballe writes to Dr. Beard: "I think there is already ample confirmation of your prediction in trypanosomiasis—it only remains to work out the practical details."

There should be little difficulty in confirming Major Lamballe's conclusion if it be true. Surra is found in the Philippines, where Musgrave has discovered the *Trypanosoma equinum* in the blood of affected animals. We have not heard much, of late, of the use of the pancreatic ferments in cancer, but whatever the fate of the claims made for their utility and effectiveness in that direction, Major Lamballe's observation must stand or fall on its own merits, and in the case of animal patients there does not exist the moral difficulty of experimenting with the new remedy alone to the exclusion of the present most valued resources, which necessarily exists in the case of a human being. It is therefore to be hoped that the treatment will be given a fair trial in various forms of trypanosomiasis in animals. If it "makes good" in that direction, it may then be judiciously and cautiously tried in sleeping sickness and other protozoal diseases in man.

A remarkable test of endurance recently took place at the great military camp at Aldershot, where Lieut.-Col. H. E. Dean, of the Royal Army Medical Corps, entered on a twenty-four hours' club swinging record. He began at noon and maintained an average of 125 revolutions a minute, swinging in unison with music. Shortly after midnight he gave an exhibition of 150 revolutions a minute to rag-time music, which he continued for over fifteen minutes. The conditions under which the test was made were, that there should never be less than ninety revolutions a minute, that the head was to be above the shoulders and the elbows clear of the sides in back shoulder circles, and that 500 combinations be maintained with style and precision during the record. Colonel Deane, who is fifty-two years of age, smoked many cigars during his trial, and when questioned on this subject maintained that they in no way affected him adversely. This is only another instance of the fact that smoking, like many other habits in regard to which there is a tendency on the part of many to maintain a crusade on the score of their universal permisciousness, is largely, after all, an individual matter. A few can practice such habits even to a considerable degree with impunity; the great many can do so without harm up to a limit which each individual must, with or without skilled assistance, establish for himself, and which bears no necessary relation to the limit requisite for another individual; a certain number can even benefit by the practice under certain conditions; while yet a large number cannot practice it in any degree or under any circumstances without injury to their well-being. There are very few, if any, habits strongly enjoined or advocated by some and equally condemned by others, to which these considerations are not applicable—so undesirably true is the old adage, "What is one man's meat is another man's poison."

The increase of suicide in England in the last 55 years is a matter of some concern. It seems to be a world wide phenomenon, and has attracted serious attention in America, as we have previously mentioned. It has greatly worried German publicists and particularly worried German pedagogs because so many school children kill themselves. The suicide rate in England has steadily increased from 6.65 per 100,000 population in 1857-61 to an average above 10 in the period 1902-1911, the last year's rate being slightly less than the average. We cannot impute this increase to the greater accuracy of recent statistics, nor is it safe to conclude that it is due to more insanity. Alienists seem to be far from convinced that more people go crazy now than formerly, and a few are inclined to believe that fewer cases arise, thocgh their lives are greatly prolonged. Nevertheless, suicide is always a result of lack of balance even if we can not decide that actual mental disease was present. We have long known that at least half are profoundly neurasthenic and perhaps all, and the problem resolves itself into determining why so many more people are neurasthenic or why the condition tempts the sufferer to kill himself. Students of the problem seem to concur in the theory that there is something in modern industrial life which exhausts us. It is not the struggle for existence for that is no greater than it ever was, nor can we blame the rush and push for that affects only a small percentage, probably no greater than a century ago. If these theories are true, the phenomenon is irremediable and will increase until by ordinary selection of the fittest the race can survive its new and artificially created environment. Yet there is a possibility that some cases are preventable. Those among German school children are doubtless due to the exhaustions of the atrocious forcing system and long hours which still make many a German shudder when he recalls his school days. There must be similar remediable conditions causing suicide of some of the adults, and we have no doubt that a careful study of the past history of every case will in time enable us to make generalizations of great value to public health. Moreover every case seems to have had preliminary symptoms which if taken in time might have led to a cure. Surely we cannot cure or prevent anything until we have studied its causes, and the increasing frequency of suicide certainly warrants some one devoting time to it as a special sociologic study—and a medically trained mind is best for the work.

Condemnation of euthanasia is necessary every little while because this criminal suggestion is made every little while by some rattle brained writer who imagines that physicians should kill all they think they cannot cure. It is not put exactly that way, but that is what it amounts to when reduced to its lowest terms and stripped of absurd qualifications. In the first place the basic purpose of the medical profession is to prolong life, not to end it. We never can cure anyone, that is we cannot put a sick man back to the exact condition he was in prior to his illness. Every sickness disturbs the delicate balance of functions permanently and reduces ability to resist the adversities of life. Our duty is to try to make him resist better and longer. Nor can we ever tell how long anyone will live. Some cases which we confidently expect to live many years will suddenly collapse, and the most desperate,

apparently moribund cases, may react and outlive those who would have administered euthanasia were it legal. The basic absurdity in the proposition is the assumption that any sick man ever believes that life is not worth the living. In a temporary delirium, one may pray for death and beg bystanders to kill him, but we must look on those statements as we do the suicidal mania of the insane. Life is always worth living and though some of us think we would prefer death to living as the submerged tenth, yet if adversity pushes us down with them, we still cling to life desperately. The plea that the physical suffering of the incurable is a reason for ending a life that might soon end itself, is made only by those who do not know that when necessary the physician always relieves such pain, though as a matter of fact the end of life on earth is generally as painless and unconscious as its beginning, and the nearer we approach the end the less we dread it. The very old may long for the end but will never hasten it. The whole proposition to administer euthanasia is therefore without a single justification, but eminates from hypersensitive souls who imagine agonies which never exist. Murders merely shorten life, and euthanasia is therefore but one form of murder. All these facts are so well known and have been published so often, it is amazing that anyone could seriously advocate the horrible suggestion. Perhaps we might emphasize the absurdity of it, by mentioning the fact that it would never be possible for a jury of physicians to be positive that an agonizing early death is inevitable except in desperate injuries where the shock itself causes euthanasia. We trust there will be no further approvals of the proposition, for though it will never be adopted, the mere discussions cannot fail to have a depressing effect on nervous people.

Regicidal mania deserves far more study and analysis than has been given to it by our psychologists and alienists. In this term we include the wide spread desire of the unstable to kill political opponents. Before we had recovered from the shock of the insane attack on Mr. Roosevelt, the King of Greece was laid low by another crazy man. The crime has been committed or attempted times innumerable in Southern Europe, from long before Caesar. Italy, Spain, Greece, France and Russia have suffered the most, but the northwest corner of Europe has been singularly free from the crime. The Norwegians have recently dethroned one king and elected another. The English have practiced the "recall" many times and though they have executed one king it was by judicial social action, not the act of one insane person. The culprits in America were mostly crazy foreigners or of central or southern European extraction. Wilkes Booth was purely British and the least abnormal of them all, but even he could not be called stable. We are safe in stating that the act is committed solely by unstable, illogical, mentally warped degenerates or by the insane. In ancient times it was the only possible way of protecting one's self from the intolerable oppression of real rulers in central or southern Europe who were suffering from incurable "mania of power" themselves; and it was a perfectly normal natural act of men who might be styled patriots. The primitive northern Aryans deposed or killed a king who abused the authority given him, but they did it by concerted action. In other

places where the people were incapable of concerted control of public affairs as in Russia at present, autocratic powers were always given to the ruler, and his removal was the act of an individual. It seems as though we had developed an instinct to kill oppressors. We had always killed any other enemy. But in modern times, when people have learned how to govern themselves, and have succeeded in restricting the duties of the head of the state to the mere execution of their will, normal men have long ceased to think of killing an executive. He is a servant and it is illogical to kill a servant for doing what we order him to do. The King of Greece was universally loved as a servant of Greece. It is only the men of arrested development or diseased minds who revert to our primitive savage desire to kill. The problem of prevention must be approached from this side, and the only prevention is a more rigid system of control of the probable regicides before they do actual harm. The medical profession must devise the means —lawyer legislators have failed or have actually worked in the opposite direction on the theory that they were making it difficult or practically impossible to spirit away the sane by conspiracy.

The harm done by social agitators must also be taken up as a psychological problem, with a view of fixing some responsibility on them for the criminal acts of unstable persons influenced by wild talk as to the injustices of society and the necessity for violent revolutions or revenge. We have no quarrel with those able and conscientious "socialists" or "social democrats," chiefly in Germany, who have done so much to better the lot of the poorer worker who has not sense enough to help himself. They have done grand work, but too many of them have created the impression that the struggle for existence is something new or at least worse than it ever was, and that society, which includes themselves of course, has somehow acted in a criminal manner by its failure to upset a natural law as old as life itself. Some have announced that there shall be no struggle for existence, and that everyone is entitled to a comfortable livelihood no matter how little his earning power. They are constantly blaming governments for imaginary faults and creating a resentment which is sure to lead some ill balanced fellow to commit acts which cannot possibly do anything except injure himself. Idle and vicious men readily seize such a pretext to justify ordinary crime as in the case of the French motor bandits recently convicted. The real murderers of McKinley were socialistic agitators of the violent group. There is no question also that the southern races are not as highly developed as the northern and revert to primitive acts under provocations which do not effect the northern. Insanity also affects the mental powers in the reverse order of their development, the most recently evolved being the first to suffer. It is quite evident then that the insane of southern ancestry will develop regicidal manias sooner than the northern who may be so far advanced in the disease before such symptoms appear, that their confinement is possible. As we have an undue number of backward races, we must expect more crime to result from unwise social agitation than in Germany or England. Socialists should be repressed in their wild talk yet we confess that in a land of theoretical free speech, it is difficult if not impossible to draw a line and state by law what shall or shall not be

spoken and some theories which now appear absurd may be proved correct 50 years hence. Perhaps we must let them talk, but protect society by confining anyone, sane or insane, who holds to a belief that it is right to kill those in authority.

The American Medicine Gold Medal for 1913 has been awarded to Dr. M. J. Rosenau, Professor of Preventive Medicine and Hygiene at Harvard University. For many years Dr. Rosenau has been conspicuously engaged in research work in connection with preventive medicine, and in scientific circles he is generally looked upon as the one largely responsible for the organization and development of the Hygienic Laboratory at Washington. Certainly his labors at the national capital were remarkably fruitful and his contributions to the standardization of tetanus and diphtheritic antitoxins, the study of yellow fever and tropical diseases generally and investigations on the phenomena of anaphylaxis placed him in the front rank of American scientists. Disinfection and disinfectants also early engaged his attention and his studies in this direction showed that he had the courage of his convictions.

It was natural that work of such a high order should sooner or later attract the attention of the scientific world, and general satisfaction was felt at Dr. Rosenau's appointment to the Chair of Preventive Medicine and Hygiene when this department was established at Harvard University several years ago. Among those familiar with the man and what he had accomplished there was hearty rejoicing at the recognition of his scientific attainments. The feeling was universal that a better selection for this Chair could not have been made, and Dr. Rosenau's friends and admirers not only took delight in the honor that had thus come to him, but derived especial satisfaction because of the new and increased opportunities afforded him for extending his researches and investigations.

How well Dr. Rosenau has fulfilled the expectations of his friends needs no comment. He has occupied a difficult position with honor and credit, and at the same time has carried on researches of the utmost importance to medical science. In fact it was his special studies in connection with poliomyelitis and its transmission that led the Trustees of the AMERICAN MEDICINE Gold Medal to consider his name this year. Although one of the great contributions to modern preventive medicine, the people generally seemed to know little or nothing concerning Dr. Rosenau's positive demonstration that the stable fly—the *stomoxys calcitrans*—was the transmitter of the cause of infantile paralysis. After careful consideration the Trustees came to the conclusion that Dr. Rosenau's determination of the role of the stable fly in the causation of poliomyelitis and the splendid work he has done—and is doing—in the field of preventive medicine and hygiene entitled him to the AMERICAN MEDICINE Gold Medal for 1913. No other achievement of the past year in the realm of medicine is more far reaching and important from the standpoint of public health than this particular discovery by Dr. Rosenau. It is in a spirit of grateful appreciation, therefore, that this year's Gold Medal has been conferred upon Dr. Rosenau of Harvard University.

The medical profession, as well as the American people at large, may well feel proud of Dr. Rosenau and the results he has obtained. Quietly, unostentatiously,

conservatively he prosecutes his work with never a word concerning it until he has something definite to tell or some information to impart that will add to the knowledge of his colleagues or promote the welfare of the people.

sublime in its fidelity and unselfishness. While others have the encouragement of discussion and controversy—the material assistance that comes from constant association with one's co-workers—the laboratory investigator usually plods his weary

DR. M. J. ROSENAU.

A true scientist, it is men of Dr. Rosenau's type that bring honor to the science of medicine. Without the stimulus of witnessing the course and outcome of his labors as the clinician does, the research worker plods on with an adherence and devotion to a fixed purpose that is often

way alone with none to cheer or applaud. Naught but steady, unceasing toil is his, sometimes with his goal dimly in sight, but usually with nothing before him but the haze of uncertainty through which he must push his way. While others rest, he goes on, hopeful and brave, trusting that the Thing he

FROM GRATEFUL COLLEAGUES
IN COGNITION OF FAITHFUL PURPOSE, SKILLFUL EFFORT AND NOTABLE ACHIEVEMENT
Greeting:
Whereas:—the earnest, fruitful efforts of
Dr. J. Rosenau.
have been blended with signal ability, skill and fidelity to the control of disease, the preservance of life, and the promotion of the health and well-being of humanity; Therefore
This Testimonial and Gold Medal Are Awarded
in grateful recognition of the faithful labors that have led to benefits of far-reaching character.
In accordance with our duty and the power invested in us by the Directors of American Medicine we have this year chosen Dr. J. Rosenau as the American physician who in our opinion has recently rendered the most noteworthy service to humanity in the domain of medicine
In Witness Whereof We Have Hereunto Set Our Hands and Seal This 25th Day of July, Anno Domini Nineteen Hundred and Thirteen.
TRUSTEES OF AMERICAN MEDICINE
GOLD MEDAL AWARD

seeks may be just beyond, and soon, aye soon within his grasp. Once in a while the Thing is achieved, but in the great majority of instances it continues to remain "just beyond."

Surely the faithful work of those who labor in the "cloisters of science" deserves our heartiest commendation!

In conclusion, we believe the award of this year's Gold Medal to Dr. Rosenau will meet with as universal approval as that of last year's to Dr. Gorgas. Modest, humble and retiring, it is nevertheless men like these that are leading the forces of medical science to victory in the present day conflict with disease.

Our recent editorial on the standardization of antiseptics has drawn fire and in the July issue of the *Old Dominion Journal of Medicine and Surgery* there is a criticism of our remarks that would command infinitely more respect if it was not so lacking in the ordinary courtesy and consideration that gentlemen usually accord each other in honorable controversy. We are free to say that we would entirely disregard this reply to our editorial and treat it with the indifference its accusations of subsidization warrant, but for the fact that the question of the standardization of disinfectants is one to which we have been giving special attention and study for many years. Without claiming any particular credit American Medicine was one of the first publications in this country to point out the importance of the subject and the urgent necessity of establishing definite comprehensive standards for estimating simply and accurately the actual bactericidal power of all so-called antiseptics and disinfectants. The views expressed in our original editorial were widely commended and it was evident that there was a large and growing interest in the subject. The economic side of the problem was especially appealing to those who had given it any practical thought or study, and it was recognized that the evolution of an authoritative standard would very promptly separate the efficient from the inefficient. No longer need false confidence—with all its essential dangers—be placed in worthless products, and with easy determination of the thoroughly effective disinfectants not only would there be a great saving of expense but disinfection would become much more efficient and reliable. Without going further into this phase of the subject we believe it will be conceded that the standardization of disinfectants is a topic in which we may fairly claim an honest and unbiased interest.

Before referring specifically to certain of the statements our critic has seen fit to make, we wish to point out that our interest in the subject has been productive of one highly gratifying result—to the writer at least—and that is the friendship developed with one of the co-discoverers of the Rideal-Walker test, Mr. J. T. Ainslie Walker. Familiar as we were with his work, it was natural that we should welcome the opportunity of knowing the man when circumstances brought him to this country. Acquaintance ripened into friendship, and the longer we have known this talented English gentleman the more we have grown to admire and esteem him. A true scientist, wrapped up in his labors and quite oblivious of himself in his enthusiastic regard for his work, it has been a matter for deep regret to observe the attitude taken toward him by the very men who should have been most ready to greet him as a colleague

and extend him every professional courtesy. We cannot believe that the manifest discourtesy—and worse—that has been accorded Mr. Walker in certain localities has been due to the fact that he is associated as a consultant with one of the country's foremost chemical firms. To the best of our knowledge and belief, American scientific workers have never refused to make such associations, if they presented themselves—and the emoluments attached thereto were sufficiently attractive. If connection with the scientific department of a commercial enterprise warrants discourtesy and unprofessional treatment—complete disregard of one's scientific training, experience and attainments—by one's colleagues, then not a few of the foremost scientists of the country who have seen fit to make open connections, deserve our sympathy—to say nothing of those whose connections are not so open. But we are not willing to admit that a man of real scientific attainments becomes a professional outcast when he makes an honorable, open and above board commercial connection. We know too many men who have made such affiliations and preserved all the dignity, honor and integrity of their profession, to admit for a minute that a commercial connection makes an honorable scientific worker essentially "a hired advocate rather than a disinterested scientist," as our critic seems to believe. It is to be feared that this gentleman has been unfortunate in his acquaintanceship with scientists connected with commercial concerns. Our experience has been more happy, and we are proud to number among our friends a good many men who hold open commercial connections and are able not only to preserve their status as honorable, unbiased scientists, but are actually doing better work and contributing far more to scientific progress than many of those who are "connected with our universities and governmental agencies." As a matter of fact, we are not ready to concede that connection "with our universities or governmental agencies" is any more a certification of honor than it is of ability. The definite knowledge we have of inefficiency, dishonesty and rottenness on the part of more than one scientist connected with a university or governmental agency taught us long ago to disregard the fetich of position. All honor to the man who holds a university or governmental appointment if his works merit it, but we want to know something more about him than his official title! In the last analysis, the whole proposition resolves itself down to the individual—the man himself. When our critic attempts, therefore, to discredit Mr. Walker and condone the petty, mean and discourteous treatment he has received from unexpected sources, on the astounding basis that Mr. Walker has a commercial connection we believe he takes a position that few will sanction. Those who know Mr. Walker need no assurances as to his scientific status nor the clean honorable motives that actuate him in his earnest efforts to promote the real scientific standardization of disinfectants.

It is a matter of some surprise in considering our critic's indignation at our "statements and insinuations" as he terms them, to note the readiness with which he attempts "to fit the coat" without being sure for whom it was intended. In taking umbrage at our remarks in regard to the promotion "of a certain other test" * * * "to further the use of a well known antiseptic," he loses sight of the possibility that

we were referring to the activities of the firm whose commercial interests were not only at stake, but who might be expected to advocate and advance any test that it preferred—for one reason or another—to have officially adopted. *Our critic,* however, is too ready in his interpretation of our meaning, and too ready to take up the cudgels prematurely. *That the Rideal-Walker test has been discredited by those seeking to advance the sale of a certain disinfectant is a matter susceptible of proof, just as is the fact that a certain other test has been actively advocated by the same commercial interests that have opposed the Rideal-Walker method for standardizing disinfectants.* This is the situation as we tried to describe it, and to read any other meaning into this or our other statement, or to draw any other inferences from them, is wholly unwarranted. The statement, therefore, that our remarks furnish a "remarkable example of skating on the thin edge of libel" would deserve more serious attention if it had any foundation in fact or was not based on an altogether false assumption of our meaning. It is barely possible that our critic may have thought that the gentle hint thus conveyed would make future discussion of the subject distasteful to us. If perchance his reference to libel did have some ulterior design, it is too bad that he has not better acquaintance with us for it would have shown him the futility of such tactics with those who make statements as cautiously as we try to.

At the same time we lay claim to no infallibility of judgment nor do we think we are always right. We make mistakes —plenty of them—though we do try to make the same mistake twice as rarely as possible. Under no consideration do we intend to do any man an injustice or injury. If we do make a mistake or misjudge any man we intend to always be decent enough to admit it and make all proper amends.

In the present instance the identity of our critic in the *Old Dominion Medical and Surgical Journal* is easily recognized, and we say to him in all kindliness and courtesy that if he will show us—privately or publicly—wherein we have made an erroneous or fallacious statement concerning any man or his work and supply us with evidence or proof that will show our views to be wrong, we will state the facts as publicly as lies within our power. Or, if this gentleman who has been so ready to place his own interpretation on our remarks and condemn us prematurely for them would like to point out our errors and mistakes, the pages of American Medicine are open to him for the purpose. Never, if we can help it shall any man say that the pages of American Medicine were denied him to right a wrong, to correct an error or to advance the truth.

One more word and we are done. Following our avowed policy we have tried to discuss the foregoing temperately and without rancor or ill feeling. We do not want it understood, however, that we do not resent the low, mean insinuation that the erstwhile editor of the *Old Dominion Medical and Surgical Journal* makes when he attributes our views on the standardization of disinfectants to the fact that the firm with whom Mr. Walker is associated as a consulting chemist carries a half page advertisement in the advertising pages of American Medicine! Can any decent, honorable man believe for a minute that any firm can purchase or influence the opinions of the editor of this publication by

placing a half, a full or twenty pages of advertising in its commercial department? Can any one believe that the independence and honor of this journal can be bought or subsidized by any one in any way or at any price? We are pleased to believe that there is not a decent man in the land who actually has any such idea. To us a good journal—like a good woman—should be above suspicion. The insinuation in the present instance would probably not have been made on sober second thought any more than would our critic—whose identity, we repeat, is recognized—been guilty of the indelicacy of referring to the late Dr. McClintic and seeking to arouse indignation by conveying the impression that his work had also been attacked.

Much as we would like to pay our respects to such methods we will be charitable and attribute them to thoughtlessness. As we leave the subject let us state that however hurt and indignant we may happen to feel at being misinterpreted, unjustly accused and placed in a false light, we stand ready to right any wrong or correct any injustice that we may have unintentionally or unconsciously done to any man. Will those who have been so ready to criticise and accuse us, meet the issue as fairly and squarely?

Curious misstatements as to tropical climates are continually coming from the tropics. Some years ago there appeared an article in the *Amer. Jour. of the Med. Sciences* by Dr. Washburn of the Philippine Civil Service Commission. He stated that if Americans were temperate and moral, there was no danger of illness, and if they should get sick they could recover there. Within a few months he himself was ill and failed to recover, so that he had to leave for a long time. The last man to make the unscientific and fatal error of misjudging nature, is the late Dr. Paul G. Freer, head of the Philippine Bureau of Science. His article appears in the *Philippine Journal of Tropical Medicine*, Feb., 1912, Sect. B., in which he says: "From all of our observations it would seem legitimate to draw the conclusion that a climate such as we have in the Philippines, where we are surrounded by the sea, which modifies the extremes of temperature, and where we have such a large proportion of cloud, is not by any means deleterious to the white man if he takes ordinary precautions, which are not as elaborate as those he would take in a northern climate to keep out the cold." Nevertheless he elsewhere states that if any untoward effects are produced, they "are caused by the evenness of the climate, etc." He also said that Bagnio "was an ideal resort for recuperation." When Freer wrote the above he was already sick, and he went to Bagnio where he promptly died before the article was distributed in America. There must be some reason for these curious case sof self-deception. Freer actually said, "In the Philippines the nights are rarely too hot for comfort, and they may even be quite cool." Such misrepresentation must be taken as one of the mental effects of the climate which was killing him. "Tropical science" cannot always be accepted as science when it comes from the tropics. We must not criticize the dead, but it is necessary to call attention to errors, for the harm they do lives long after they are buried. People contemplating tropical residence must be warned of the dangers so as to avoid them. The unspeakable rubber atrocities in Africa and South America, must have a mental origin for the culprits were not criminal at home. Judgment must be seriously affected.

ORIGINAL ARTICLES.

THE PERNICIOUS VOMITING OF PREGNANCY.

BY

RUFUS A. KINGMAN, M. D.,
Boston, Mass.

Late Gynecologist to the Boston Dispensary, St. Elizabeth's and Carney Hospitals, Boston, and Consulting Gynecologist to Noble Hospital, Westfield, Mass.

The attitude of the general practitioner of today toward the vomiting of pregnancy does not materially differ from that of the physicians of fifty years ago. If the case be of a mild nature, of the sort known as "morning sickness," he either tells the patient that it is a necessary penalty of her condition, or dismisses her with a prescription for some simple stomach sedative, or alleged digestive, or prepared nutrient. It is only when her condition becomes manifestly serious, or her suffering so poignant as to compel active measures for relief, that he becomes genuinely interested.

And yet, even a mild degree of seasickness continued for a whole week, for two weeks, for a month, for a series of months, may give rise to a sum total of suffering such as no person living can face with equanimity. The utter wretchedness of many thousands of pregnant women who are never seriously ill, but who for several months suffer from almost constant nausea, vomit once or twice daily and experience a lack of appetite, or a positive disgust for food, ought to more strongly enlist the sympathies of the medical profession and compel agreement upon some practical and effective method of relief. That such a method is not impracticable seems to me to be proved by the fact that in twenty years no single case, no matter how severe, or how far advanced, has failed of relief within one week, either in my own hands, or perhaps with less complete uniformity, in those of my associates who have adopted the methods and principles to be later described.

In my first few years of practice I was personally conversant with five fatal cases of pregnancy vomiting; it being admitted that complications were more or less responsible in several instances. Two of these patients were wives of intimate friends, and the stepmother of one of the husbands had twice been relieved of the same condition by induced abortion, and was never able to bear a child. The impression produced upon a young and enthusiastic physician, who was making obstetrics—and later gynecology—his life work, was naturally deep and lasting, impelling to earnest study, investigation and observation in every way that suggested itself.

My report of one of the above mentioned cases being quoted by Dr. Graily Hewitt, of London, led him to send me a complimentary copy of his book "Severe Vomiting during Pregnancy," published in 1890, and thus began a correspondence terminated all too soon by his untimely death. In this monograph he clearly outlines the principles, both as to causation and treatment, which, in the light of further development and experience, have resulted in methods of treatment yielding the prompt and invariable relief already mentioned. Indeed, in rereading carefully Dr. Hewitt's admirable paper, I am amazed to find how completely he has covered all the ground and how little opportunity has been left for anyone to amplify or improve upon his theories or his methods of treatment. This paper becomes, therefore, less a discussion

or study of the general subject of pregnancy vomiting, than a defense and proof of the accuracy of his teachings. He has stated the case far more completely and more thoroughly than I can hope to do, therefore it is only necessary either to quote his arguments, or to refer the reader to his many published writings, among which the monograph in question should hold a prominent place. In these days of medical libraries the latter course is chosen.

The many theories which have been advanced to account for pregnancy vomiting are usually classified in three groups, viz.:

1. Reflex.
2. Neurotic.
3. Toxemic.

Leaving group No. 1 for a moment, let us consider the other two. The more advanced of the supporters of the neurotic theory may be ably represented by one of the foremost of contemporary German gynecologic and obstetric surgeons, who said to me two or three years ago when I tried to interest him in my own experience and beliefs—"The vomiting of pregnancy is a purely hysterical phenomenon," and the discussion began and ended there.

That a nervous system acutely responsive to adverse influence is an important factor in many, if not most cases of severe pregnancy vomiting is not to be doubted, but that it is the only, or even the chief cause, is strenuously denied. There seems to me to be no question that race, temperament, general health—especially as concerning the condition of the nerves—the presence or otherwise of mental or moral stress—all these and many more states and conditions may, and indeed must have an important bearing upon the degree and importance of the vomiting. Nay, more, I know that such conditions may be the chief if not the only cause of certain mild cases—cases never for a moment to be considered as serious by any intelligent observer, but that such cases ever go on to the stages marked by fever, delirium and death, I do not for a moment believe.

The supporters of the "reflex" theory however, by no means deny the influence of the various causes advanced by the friends of the "neurotic" theory; rather, they make them a part of the reflex plan, as will be explained later.

The popular theory of recent years, however, is that which assigns toxemia as the cause in all serious cases and proves its case by autopsies and by urinary analysis. It is not necessary to state this theory in its various forms, for no subject has been so constantly and prominently before the medical profession in its journals during the past five to ten years, and the recent textbooks describe and explain and accept this hypothesis with varying degrees of enthusiasm. That it has not reached a very complete elucidation, may be judged from the fact that one of its most ardent and respected exponents admits that, "At present we are absolutely ignorant as to the exact nature of the toxic substance or substances concerned, though in the present state of our knowledge it would seem most natural to suppose that they are metabolic in origin and are directly connected with pregnancy—though whether derived from the mother, or fetus, or both, is not known."

And if the knowledge of the toxic substance in its origin is meagre, so also are the practical results to the patient. No means is known for preventing, or destroying, or removing that substance, but we are given a practical guide, in the ammonia coefficient, for the determination of the proper time for the induction of abortion.

In other words the practical advance gained by this valuable addition to our scientific knowledge is that we know now how helpless we are and how useless is all treatment but we do at least know when to destroy the child before it is too late to save the mother.

The reasoning by which the conclusion is reached that the toxemia is the cause of the vomiting is no less curious and interesting than the conclusion itself, in view of the fact that the vomiting always shows itself first, the toxemic indications always coming rather late. As stated by the same authority already quoted, the observation of a number of fatal cases in which abortion had been induced for the relief of vomiting, impressed upon him the fact that the vomiting had been associated with a marked toxemia and with a condition of yellow atrophy of the liver. These observations forced him to "conclude that some cases at least of pernicious vomiting of pregnancy are undoubtedly toxemic in nature, and are associated with serious lesions of the liver and characteristic changes in metabolism."

Now why should one conclude that a toxemia plainly present at a late stage in a fatal case of vomiting, must be the cause of the earlier condition? As reasonable was the excuse of the wolf for killing the lamb drinking at the same brook at a point much lower down; that the lamb had muddied his drinking water. Why should not either the vomiting or the liver changes be held guilty of the other two conditions? Or why, much more reasonably, should not some other cause be sought as a sufficient explanation of all these conditions, as well as of various other abnormal manifestations during the pregnant state?

Let it be clearly understood at once that it is not the purpose of this paper, either to prove or to disprove the presence of toxemia as a condition associated with the pernicious vomiting of pregnancy, nor is its serious importance denied. That it bears any causative relation to the vomiting is, however, most strongly objected to. Very few, so far as I know, have claimed that toxemia is the cause of the very early and simple forms of "morning sickness," but no one has taught us how to know just when the toxemic influence takes possession and becomes the dominant factor, nor has anyone pointed out in what fashion toxemic vomiting differs from any other kind—except in degree, or severity. And yet the most desperate and prolonged and threatening cases which I have seen in many years, have been relieved of all distress in a few minutes, and permanently cured in a few days. Can a toxemia be materially influenced in five minutes? If not, then it was not the cause of the vomiting.

It will be objected here that I have not availed myself in these cases of the test for ammonia in the urine; but why should I waste time and effort upon non-essentials, in the light of an experience of unbroken success along more rational lines? It will also be objected, and the objection is valid and its force is deeply regretted, that this line of argument and most of that which is to follow, is based upon the personal experience and assertion of one man—the writer. Unfortunately, this defect cannot be obviated. A far more important man than myself and one whose teachings carried a vastly greater weight of authority, taught and urged for years the wholly reasonable and practically successful theories

of cause and of treatment, and for thirty years his wisdom has been passed by as of no consequence. In this paper I embody some of the observations, and conclusions, and results arrived at by an intelligent adherence to his teachings; an adherence modified in some particulars, amplified in others, but ever strengthened and crystallized into absolute conviction by the cumulative testimony of a varied hospital, dispensary, private and consultation practice, presenting hundreds of cases in varying degrees of severity. You are of course, at liberty to reject my testimony as biased, prejudiced, or untrue. But suppose it is true! Can the teachers of the toxemic theory do as well for their patients? Can you yourself do as well? Don't you wish you could? Are you doing your whole duty by your patients if you neglect to try what others (for I am not alone in this)—what others are doing with uniform success?

The explanation of the pernicious vomiting of pregnancy on the basis of toxemia, as at present set forth, is as enlightening as the reply of the man when asked how he lost his leg—"It was bit off." It does not answer anything; it only pushes the mystery a little further back.

Coming now to the reflex theory, let us consider first the inherent probabilities as to its accuracy. If we ask ourselves what other condition most closely resembles the characteristic nausea and vomiting of pregnancy there can be only one answer—seasickness. Has anyone ever suggested toxemia as the cause of the distressing symptoms of this disorder? That neurotic and psychic influences are factors to be considered is self-evident, but that they are the principal, or determining cause is not true. It is admitted that this form of nausea and vomiting is of reflex origin; remove the distressing factor of unstable equilibrium and the symptoms pass at once. Whether severe and prolonged seasickness, especially those rare cases which prove fatal, are characterized by an increased ammonia coefficient, I have been unable to learn; but if they are, must we assume that the nausea and vomiting have been caused by toxemia, and not by the reflex disturbance induced by the motion of the vessel?

If the nausea and vomiting of seasickness are reflex in origin, why not the identical symptoms during pregnancy, resulting from the pregnant state?

* * * *

Just after writing these lines, I received a call which fitted so well into the line of thought as to suggest a coincidence worthy of record. The wife of a colleague, one of the notably successful and able younger surgeons of this city, called to express her thanks once more, and in person, for the relief experienced during her early pregnancy. Believing that I had not fully appreciated the severity of her illness and the gravity of her condition, she told me that when she consulted me she had not sat down to a single meal for five weeks, and that during that very morning she had vomited eighteen times. Her physician, a most intelligent and progressive man, had advised her to remain in bed, but had been unable to afford her any relief. An hour or two after the first treatment she was able to sit down with her husband at a dinner given in honor of their wedding anniversary, to enjoy the various courses, and to attend the theatre the same evening, without discomfort, or suggestion of nausea.

Two days later, in over-confidence, neglecting precautionary measures, a long

automobile ride was followed by a return of the former symptoms in an aggravated form. A single treatment, however, gave immediate relief, and a few repetitions made this permanent.

This was a case with no neurotic elements, and it was cured too quickly to permit of any toxemic explanation; but suppose the reflex disturbance had been permitted to continue—can anyone doubt that toxemic symptoms would have shown themselves very promptly? And if so, could the toxemia have been properly assigned as the cause of the vomiting?

It is a matter of common experience that certain women experience with each menstrual period, nausea and vomiting, and in these cases examination usually reveals sharp anteflexion, with retroposition of the uterus, due to contracted utero-sacral ligaments. Are not the symptoms in these cases frankly admitted to be of reflex origin, proceeding from the uterus? And yet this is the pelvic condition which is present in a large majority of cases of *pernicious* vomiting of pregnancy.

What then is the "reflex theory," and what is its scope, and what does it demand for its proper interpretation and application? How does it explain all the different degrees of severity; the differing forms of treatment; the frequent failures, and the sudden fluctuations in severity; why the *"morning sickness?"*

Graily Hewitt states the reflex theory as follows:—it "implies consensuous action of the elements:—

"1. The irritating agent, which is local.

"2. The nerve centre—the irritation-receiving organ—which is central.

"3. The muscular contractions constituting the act of vomiting."

He says that either No. 1 or No. 2 may be chiefly responsible in different cases, the worst cases being those in which "the elements 1 and 2 are both in an exaggerated *plus* state." He says also that "the reflex theory of pregnancy-vomiting almost necessarily assumes that the uterus, or some part of it, is the starting point," and "that there is no essential difference between the ordinary vomiting of pregnancy and the severe, or so-called uncontrollable form of the affection."

Here he asserts what seems to me to be a self-evident, and yet very important fact, that there is no such thing as "physiological vomiting of pregnancy," so often mentioned by modern writers, but that all vomiting is pathological, and therefore to be regarded with suspicion and its cause sought and removed. He explains that during pregnancy, as at other times, vomiting "may be due to disease of some organ other than the uterus."

"Excluding such cases, by far the majority of cases of vomiting observed during pregnancy are dependent upon the pregnancy (vomiting *of* pregnancy).

"Vomiting is not a universal symptom or a necessary effect of pregnancy; from which it follows that it is not physiological, in the strict sense of the word. The vomiting of pregnancy may be slight or severe. There is no essential difference, save that of degree, between cases of slight and severe vomiting of pregnancy.

"It is reasonable therefore, to infer that the cause of the slight and of the severe sickness of pregnancy is one and the same, the cause or predisposition differing in intensity in the two cases. A trifling degree of 'irritation,' if *persistent,* may cause dangerous severe vomiting.

"The evidence adducible is very strongly in favor of the view that the 'irritation' which excites the reflex vomiting is seated in the uterus.

"The evidence appears to point to the conclusion that the irritation may be further defined to be undue pressure or tension of the nerve-filaments distributed in the walls of the cervix, especially those in the vicinity of the internal os.

"The alterations of the uterus proved by recorded cases to be most frequently present in cases of severe vomiting are:—

"*a.* Marked flexion forwards or backwards.

"*b.* Rigidity of tissues of the cervix.

"*c.* Impaction or detention of the body of the uterus in the pelvis.

"It seems to have been taken for granted that cases of impaction with retroflexion may be allowed to be explained by the presence of the displacement. The cure by replacement in these cases has also been admitted. As regards the anteflexion cases it is different, and it is concerning the explanation of these cases that the evidence adducible requires careful study before the explanation is rejected."

Granting then that varying degrees of susceptibility of the nervous organism greatly modify the response in different patients in whom evident cause exists for reflex irritation, let us consider the conditions most frequently giving rise to such irritation and the reasons for believing this latter to be the determining cause of the vomiting—and perhaps of many other abnormal manifestations during pregnancy.

In my opinion, anteflexion is the cause of the vast majority of cases, both of the mild and of the severe types of vomiting. Graily Hewitt adds to this the presence of "*impaction*" as an essential element in the more severe cases and in this he is fully justified. Unfortunately, however, he misses the cause of this impaction and so misses the absolute mastery of the situation and the certain means of swift relief and cure. These words seem unwarrantably strong but they will be justified. The impaction is due to the thickened, contracted condition of the utero-sacral ligaments, always present in extreme degrees of anteflexion, and associated at times with similar conditions in other parts of the periuterine cellular tissue. This contraction of the posterior ligaments is an exceedingly common condition in women of all ages and of all classes, being apparently indirectly the result of a chronic endometritis, which in turn keeps up a mild, but continuous parametritis posterior. Its effect is to hold the uterus tightly in the hollow of the sacrum; the cervix being pressed forward and upward by the pelvic floor and by the passage of fecal masses through the rectum, while the fundus is pressed forward and downward by the superimposed abdominal contents.

The diagnosis of this condition ought to be easy, and yet I have found it commonly overlooked, even by men of notably high professional skill and reputation. I have never been able to understand why this should be, and yet I have repeatedly pointed out to such men, after they and previous consultants had denied its existence, an angle of flexion as sharp as if cut with a knife. The contraction of the posterior ligaments cannot be overlooked by anyone who really seeks to find them. In any case, if they are contracted, or even very mildly inflamed, any attempt to lift, or to draw forward the cervix, causes pain, and the normal mobility is found to be limited. Also, when the patient is placed in the

knee-chest position—*properly placed and with all clothing loosened*—and a small Sims speculum is inserted, the cervix will be found to remain close to the sacrum, in the upper portion of the vaginal cavity so formed. If, however, mobility is normal the uterus will drop forward toward the abdominal cavity, and the cervix will take its place at the *bottom* of the vaginal cavity, often too deep to be reached by the examining finger.

This matter of careful examination and correct diagnosis is insisted upon as of the utmost importance, because its lack in the past is the only explanation I can find for the rejection of the reflex theory and the lamentable failure of treatment at the hands of the profession at large.

Anteflexion, while the chief cause, is by no means the only cause of vomiting. Retroflexion, while far less common, will produce quite as serious symptoms, but with this fact in its favor, that it is rarely overlooked and, being easily corrected, relief is promptly attained.

One of the fatal cases that I saw many years ago, was that of a multipara with very deep multiple lacerations of the cervix, one extending beyond the vaginal junction. The whole cervix was very dense and inelastic, as if it were chiefly transformed into cicatricial tissue. She was in the stage of febrile delirium, but her death was really due to neglected hemorrhage two days after abortion, she having been left alone for twelve hours, even though her nurse had been strictly warned by the attending physician.

There are other pelvic conditions which may give rise to vomiting, but without doubt the most serious source of reflex disturbance is found in compression, or irritation of the nerve fibres in the cervix and especially in the region of the internal os. Let us see how this works out in the simple cases known as "morning sickness." The average woman, whether by reason of tight clothing, or constipation, or lack of general tone, or hard work, or strenuous exercise, or little-known conditions of fluctuating congestion associated with the demands of the reproductive impulse, or for other reasons, commonly has her uterus pressed down a little more deeply in the pelvis than it normally should be. In many of these cases the cervix has already begun to advance along the line of least resistance, becoming thus anteflexed. Now comes pregnancy, and pressure on the cervix is increased. The body of the uterus is free to expand but the cervix is cramped—incarcerated under pressure. While the patient is relaxed in sleep this pressure is largely relieved, but as soon as she stands upon her feet it returns, and the emptying of the bladder lets the fundus fall forward, thus increasing the flexion. The fact that practically all of these cases find relief when the uterus rises out of the pelvis, tends to confirm this explanation of the reflex origin of the vomiting, as also the fact that instant and certain relief is obtained by the simple use of the knee-chest position, with admission of air into the vagina. Where mobility has become restricted, this treatment is not effective, thus indicating still more strongly the responsibility of cervical compression.

To say that we cannot always determine the exact nature of the reflex disturbance does not disprove its existence; it only teaches us the need of more thorough study and more penetrating observation. The results obtained by the author, working alone and in the face of disbelief and contrary to the trend of all modern teaching, certainly

ought to encourage others to take up the matter and carry it to a triumphant conquest. For while the stoutest advocate of the theory that toxemia is the cause of all the ills, both great and small, which beset the pathway to maternity, will hardly attempt to explain just why the vital organs permit this toxic accumulation; I assert, without exception or reservation, that in no single case treated by me during the past twenty years, has there been any subsequent indication of toxemia, as shown by its effect upon any organ whatsoever. Why may not this reflex disturbance which upsets the functional regularity of the stomach, act similarly in the case of the kidneys, liver and other organs?

My favorite statement of the case for the reflex theory is as follows:—Given a young lady of wealth and good parentage; strong, athletic, never ill; fond of tennis and golf, walking, horse-back riding, mountain climbing—she marries, becomes pregnant and promptly begins to vomit. She is physically one of the finest works of God, and is performing one of the commonest and most essential of physiological functions. Why should she be dying of toxemia and yellow atrophy of the liver, *purely because of the pregnancy,* in two or three months? If such were the case, could there be a more terrible arraignment of the bungling plan of Nature? But it is not true!

The first and most important change in her organism is in her uterus, and that is where one should look for the source of her troubles. Whether or not it is found and relieved depends upon the skill, the experience, the judgment and the resourcefulness of her medical attendant. I say that in ninety-nine cases out of one hundred it can be removed or alleviated.

What has happened to this splendid piece of mechanism to so completely disarrange its orderly operation? One organ and one alone has taken upon itself a new function which involves marked changes in the organ itself, to be followed later by more remote alterations. Is it not then the most reasonable and obvious thing in the world to assume that the disturbance of the rest of this orderly mechanism proceeds in some manner from the organ which is undergoing a change? And if, proceeding upon this assumption, a focus of disturbance is found in that organ; not once, nor twice, but many hundreds of times, and upon removing the disturbing element all the rest of the mechanism returns to its orderly operation—is not the assumption proved sufficiently to satisfy any reasonable man?

If the interfering influence proceeds from the compressed cervix, over the sympathetic nervous system, and upsets the stomach in its orderly operation, why is it not quite as likely to disturb other organs and their functions? What further need is there to seek an explanation for the presence of toxins in the blood, or what excuse is there for holding the toxins guilty of causing the very disturbance which has resulted in their own presence?

It will be objected that this theory does not explain every case, with all the varying symptoms and the fluctuations in their intensity. Very true, there are still many things which we do not fully understand, but there is no good reason why we should continue in ignorance. There are many matters to be learned concerning the many and rapid changes in pelvic conditions from day to day and from hour to hour under varying influences of work and rest, content or worry, pleasure or pain; or as af-

fected by constipation, by diarrhea with tenesmus, by various emotions, by foods and medicines, and more than all else by the functional activity of the organs themselves. Our wilful ignorance of, and silence upon this latter subject is little short of criminal, as is made evident by the bearing upon our present investigation of the following suggestions.

As concerns the influence upon pelvic conditions is there likely to be any difference between the era of comfortable lassitude, of restful relaxation which succeeds the consummation of the supreme expression of affection and unity between husband and wife, and the state of tension, of congestion, of nervous irritability which results from aroused but ungratified desire? Has that difference been measured? Has it ever been taken into consideration as a factor? Why should the functional activity and use of the pelvic organs be neglected in considering the health of those organs and their influence upon the health of the rest of the body? It is quite proper to trumpet these matters to the world through the medium of the divorce court, which exists because of our ignorance and neglect, but no whisper of such vital questions must pollute the sacred privacy of scientific investigation. Is it possible that there can be any more potent influence acting upon the reproductive organs, than the impulse implanted by Nature to insure the continuation of the species?

Blame not the person who frankly yet reverently studies and discusses this most important and sacred function of Nature in order that it may be freed from any possible evil influence and be given its proper place as a potent instrument for the advancement of the physical and moral health and happiness of the race, for until we know very much more than we now know about the laws governing the potent forces which are operative in and through the reproductive organs of woman, we shall not be in a position to explain with any certainty either their own eccentricities, or their influence upon other parts of the human mechanism.

The treatment of pregnancy vomiting is naturally to be governed by a commonsense view of the various causative factors in each given case. Where emotional, psychic, neurotic causes are alone operative, good judgment will suggest the remedy. In the average case of "morning sickness," careful, minute instructions for the use of the knee-chest position will usually suffice, without preliminary examination. All clothing about the waist and thorax must be loose; the muscles of the abdomen must be relaxed; and air must be freely admitted to the vagina, either by separation of the labia, by retraction of the perineum, or by the insertion of a tube. Especially should this posture be assumed just before settling down for the night, the patient then extending herself face downward upon the bed and turning to a comfortable posture for sleep.

When more heroic measures are required, careful examination should be made, and repeated as many times as necessary, to determine the exact pelvic condition. Bladder and lower bowel should be emptied and all clothing loosened, also the examination should be made upon a table if possible. Especially note whether the cervix rests upon the pelvic floor, whether it is anteflexed, and whether normal uterine mobility is restricted by contraction or rigidity of uterosacral ligaments, or by other periuterine tissues.

Of course, ordinary intelligence will suggest rational means for lessening the sensibility of the receiving and carrying apparatus—the nerves—and also for avoiding any forms of food which may unduly tax the weakened digestive apparatus. Treatment of the digestive tract may well supplement the specific treatment of the reflex cause of the vomiting and, of course, intelligent supervision of the functional activity of the various excretory organs will naturally suggest itself. Methods of diagnosis and treatment of the more obvious of the uterine displacements and other pelvic diseases need not be discussed here, being fully covered by present-day text-books, but the treatment of the condition most frequently found to exist in the cases of *"pernicious vomiting,"* as well as in the less dangerous but yet obstinate and distressing forms, requires careful and minute consideration.

In the vast majority of these cases there is present, as has already been said, anteflexion of the cervix uteri, with varying degrees of descent of the uterus upon the pelvic floor, and more or less fixity of the uterus by reason of thickening and contraction of the periuterine cellular tissue, especially in the peritoneal folds known as the posterior or uterosacral ligaments. These conditions explain the "incarceration," or "impaction" of the uterus noted by Graily Hewitt as an essential factor in the reflex irritation which is responsible for the symptom-complex demanding relief and they plainly indicate the line of attack and the nature of the result to be attained. The specifications for the treatment selected, demand that it be free from danger of inducing abortion, that it be simple enough to be carried out by any practitioner of reasonable ability and experience, and that it not only suffice to save both mother and child, but that it give prompt and decided relief from both nausea and vomiting. If it also puts a stop to all present and future toxemic manifestations, no objection can be made.

Graily Hewitt advised the use of the knee-chest position, digital elevation of the uterine body, the introduction of vaginal tampons, and in some cases the distension in the vagina of a spherical rubber air pessary with a diameter of 1¾ to 2¼ inches. All of this advice is good, but years of experience have brought added information, improved methods, and greater certainty of results. Any one who would win success in these cases must first perfect himself in the technique of the knee-chest position. It must be so used as to insure the free advance of all abdominal and pelvic contents toward the diaphragm, permitting the distension of the vagina with air, as already explained; and yet the patient must be so draped and protected as to avoid undue exposure, exertion, or fatigue. Most corsets increase intrapelvic pressure, but it is easy today to procure those which support the lower abdomen and remove all pressure from the waist and lower ribs. If such a corset is worn, the knee-chest exercise will be effective without loosening the clothing.

In very obstinate cases, the finger may be used to supplement the pull of gravity while the patient is in the knee-chest position, but very rarely will this be wise or necessary. The useful but primitive cotton tampon and air-ball of Dr. Hewitt are supplanted by a greatly improved form of *wool* packing. The *tampon wool* sold by dealers generally, is in the form of an endless strip of beautifully fine wool, the fibres being combed out straight and parallel. As

a bed made of horses' tails would compare poorly with a curled hair mattress, so this *tampon wool* is inferior to a lightly felted, curly wool, each individual loop of which gives an elastic push, which is not destroyed by moisture. A packing made from this latter material forms a soft, elastic cushion—lifting, stretching, supporting, soothing—as contrasted with the hard, sodden, irritating tampons of cotton.

The sheets of wool are separated into layers about one inch thick and are cut into pieces about 1½ x 3 inches. These are tied at six inch intervals to a soft, white, cotton twine, or strong linen thread, after the fashion of the kite-tails familiar to all boys of the passing generation. The first piece is dipped in a solution of ichthyol, or any bland antiseptic preparation which may appeal to the operator, or in a semi-liquid, white petrolatum—the latter being my own usual choice. Retracting the perineum with a very small Sims' speculum, or in default of this using the forefinger of the left hand, the patient of course being in the knee-chest position, the tampons are placed one by one, gently yet firmly, until the vagina is reasonably full. Then the string is cut so as to leave a protruding end, by which the patient can remove the whole dressing whenever indicated. The vagina is distended uniformly by the air pressure and the wool simply supports the pelvic organs and their blood vessels in approximately the same position. Only in cases of strong contraction of the uterosacral ligaments is it necessary to pack tightly, so as to exert stronger pressure than that of the air.

The manner of placing the first tampons calls for judgment and greatly influences the result. If the flexion is chiefly due to pressure from above and the mobility is not greatly restricted by cellular infiltration, pack wholly in front of the cervix, so straightening out the flexion by lifting the fundus and pushing back the cervix. If the posterior ligaments are very tight, it may be well to pack a few times as just described, for immediate relief, and continue by packing very firmly in the posterior cul-de-sac, to remove the cause of impaction and make the cure permanent. One can hardly expect to get the same prompt and certain results on the first trial as after many years of experience, but even so one need never expect failure.

I hear of doctors who are "afraid" to try this treatment, but they are not afraid to let their patients suffer unrelieved for months, nor are they afraid to destroy the child to save the wretched mother. In twenty-five years of constant use of this treatment, no case has ever presented threatening symptoms of abortion, so the fear seems to be misplaced. The string offers the patient control over the situation and she should be directed to remove the wool at the first suggestion of discomfort; and in any case to remove it after twenty-four to thirty-six hours. A small, gentle cleansing douche may be safely taken.

The air-ball pessary suggested by Dr. Hewitt may serve a useful purpose in cases which, for any reason, cannot be regularly seen and treated, as for instance in patients compelled to start upon a long journey, or who live at a point remote from any competent physician.

The pessary may be introduced deflated and then be blown up to a specific size by a definite number of bulb compressions. The air should be allowed to escape and the ball be removed at least once a day; the vagina should be cleansed and the ball should be left out half a day or more, ac-

cording to indications. The value of the knee-chest position, both during presence and absence of the ball, will greatly help in the relief of symptoms and in insuring safety.

The use of proper clothing and the intelligent treatment of anteflexion, with its attendant conditions, previous to the beginning of pregnancy, supplemented by advice already suggested, often succeeds in making a patient immune to even the so-called "physiological vomiting," just as the same treatment, or the cure of the pelvic condition by a pregnancy and delivery, often removes in large measure the tendency to carsickness and seasickness.

With this brief sketch of the most commonly used treatment, I have suggested the underlying basis upon which all schemes of treatment must be founded, viz., an intelligent understanding of the pelvic condition which serves, or may serve, as an exciting cause; and also careful consideration of the nervous system, which receives and conveys the exciting impulse. Common intelligence will indicate the importance also of insuring normal performance of all vital functions.

The essential elements of my present contention are as follows:

1. Pregnancy is a physiological process in which nausea and vomiting have no useful, necessary, or normal part. They are therefore never physiological, but always pathological and therefore to be prevented, or stopped, in every case, and at once.

2. Toxemia plays no important part as a cause of pregnancy vomiting, though it is doubtless often present as a result of a common cause, and may be a factor in advanced cases.

3. Neurotic influences greatly increase susceptibility to reflex stimuli, as also the degree of the response, hence all such influences are to be sought out as important factors.

4. The essential, exciting, determining cause in all serious cases is a reflex disturbance proceeding from the uterus—usually from the cervix and especially from the region of the internal os.

5. The important conclusion of the whole matter is that an intelligent treatment based upon this conception has resulted in quick, uniform and permanent cure in every case, during a period of twenty years, regardless of the stage or severity of the case, provided the patient was not moribund when first seen.

6. These results are not exceptional, but can be obtained by anyone who will fit himself to make an accurate diagnosis of the pelvic condition and to properly carry out the indicated treatment.

7. If prompt relief from suffering, and security from all danger, can be promised in every case, who will dare in future to counsel destruction of the child?

"But," it will be asked of me, "what reason have you to suppose that this personal statement and appeal upon which you rest so confidently, will receive any more attention, or produce any greater result, than did the insistent teaching of the recognized authority—Graily Hewitt?"

One reason there is, and only one. When he wrote, he set forth a theory (only a theory) backed by his own judgment, and admittedly not yet completely worked out, nor fully understood.

This paper, on the contrary, states *facts*, supported by many years of personal experience and confirmed by that of numerous independent observers. After becoming acquainted with the contents of this paper, no practitioner or teacher, no man or woman, may ever again suggest or practice artificial abortion for the relief of pregnancy vomiting, without either first giving a fair and intelligent trial to the teaching here set forth, or else disproving to his satisfaction the truth of my assertions. Should such a course of neglect or denial be followed, one must answer to one's con-

science, if not indeed to a higher tribunal, to the charge of wanton and malicious destruction of human life.

Let it be clearly understood, however, that a *"fair and intelligent trial"* does not mean a careless and untrained examination, followed by an unskilled and incredulous attempt at treatment. The diagnosis must be minute, and conscientiously made by a skilled seeker of the truth, and the treatment must be carried out by one who has thoroughly mastered the principles and methods involved.

In the absence of such competent test, however, the load of responsibility must rest heavily upon any individual who persists in ignoring these facts as stated, and who thereby permits suffering and death to continue, in the future as in the past, without relief and without hope.

SOME REMARKS ON ARTERIOSCLEROSIS.

BY

I. L. NASCHER, M. D.,
New York City.

Professor of Geriatrics, College of Physicians and Surgeons, Boston.

The fundamental error in dealing with arteriosclerosis is the almost universal conception of this disease as a pathological entity. As a result of this error the physician treats all cases of arteriosclerosis alike, and consequently, the proportion of failures is extremely great. It should be recognized that there are many forms of arteriosclerosis, that this is a generic term covering several distinct pathological conditions, and that only in the terminal stages of these conditions do they approach a general type, and become finally a clinical and pathological entity.

What is usually considered a pathological process in old age is in reality a physiological process—in other words, there is a pathological and a physiological arteriosclerosis.

The physiological arteriosclerosis in old age begins in the media with a loss of tonicity of the muscular fibres of the vessels. This loss of tonicity is probably due to the constant stretching and relaxation of these fibres without intermission and without a chance for recuperation. It is similar to what would occur in a rubber tube if it were constantly stretched and relaxed at the rate of sixty or seventy times a minute —this rubber will in time lose its elastic properties. In the same way, the muscular fibres gradually lose their elastic properties, and they allow the vessels to dilate.

With the loss of the tonicity of the elastic fibres there is a change in the character of the fibre itself. It atrophies and its place is taken by connective tissue; thus an arteriofibrosis is produced.

This senile physiological arteriosclerosis rarely proceeds to the extent of calcification. It is the form generally found in the aged, and the form which is absolutely incurable. It is possible to defer these changes, since they are undoubtedly due to excessive vascular activity, as occurs in physical activity. The ordinary form of arteriosclerosis which occurs earlier in life is pathological. It is due to irritating substances in the blood. These may be microorganisms, or bacterial toxins, the toxins of intestinal decomposition, the various abnormalities in the blood, either excessive constituents as calcium in gout; sugar in diabetes; urea in nephritis; bile in the various conditions associated with a hepatogenous jaundice.

These substances in the blood irritate the lining membrane of the vessels producing at some spot or other sufficient irritation to cause a local inflammation. This inflammation or endarteritis will keep up as long as the cause remains. If the etiological factor is prolonged the inflammation will spread to the media. In the meantime the local focus of inflammation degenerates, there is a fatty breakdown, the lime salts are deposited in this substance producing a saponification and later a calcification. This calcification will proceed until the whole thickness of the vessel is involved. This is a form of arteriosclerosis which is amenable to treatment, the treatment depending, of course, upon the underlying cause. As syphilis is the most prolific cause for this form of arteriosclerosis, the iodides are usually beneficial.

Demange has shown that many cases of arteriosclerosis begin in inflammation of the vasa vasorum, that these fine vessels become inflamed through an irritating condition of the blood. The irritating substances may not be sufficiently irritating to produce an inflammation of the lining membrane of the larger vessels, but will irritate the fine epithelial cells of the small nutrient vessels, i. e., the vasa vasorum. These cells swell up, diminishing the calibre of the vessel and preventing a sufficient supply of blood to nourish the larger vessels, with resulting degeneration, the degeneration first taking place in the media. The tissue immediately around the mouths of these nutrient capillaries wastes, leaving minute cavities, the so-called atheromatous abscesses. These cavities are later filled by connective tissue. It seems that wherever muscular tissue does not receive sufficient nutrition it wastes, and its place is taken by a lower order of tissue which requires a smaller amount of blood for its nutrition.

Another form of arteriosclerosis which begins with malnutrition of the vessels is due to increased viscosity of the blood. In this case the blood passes through the vasa vasorum with greater difficulty, its flow is retarded, and the main vessel receives an insufficient amount of nutrition. The iodide of potassium is beneficial in such cases, since it diminishes the viscosity of the blood.

It will be found that of the various methods of treatment of arteriosclerosis that have been advocated each method is of service only in certain forms of arteriosclerosis—that there is no one remedy, or no one method of treatment of the disease applicable to all forms, while the senile, physiological form cannot be cured at all.

Interesting in this connection is the modus operandi of the high frequency current in those cases in which it is of benefit, since it seems to be only of service in such cases as are not benefitted by drug treatment.

In a recent paper on Longevity and Rejuvenescence, which I read before the Medical Association of the Greater City of New York,[1] I recommended red amorphous phosphorus which I have found of benefit in senile arteriosclerosis. The rationale of its action is its property of combining with calcium, in which form it is eliminated as amorphus phosphate of calcium, the calcium being withdrawn first from those tissues in which it is in excess or abnormal.

Since senility depends in part upon the retention of lime salts in excess, this treatment, by increasing the elimination of lime salts, withdrawing it from the blood, thereby

[1] *N. Y. Medical Journal*, July 12th, 1913.

diminishing the viscosity of the blood, seems to me to be the most rational method of treating this condition. It does not cure senile arteriosclerosis, but it will promote a freer circulation of blood through the organs and tissues, thereby improving their nutrition.

(This subject is discussed at length in the writer's forthcoming work on Diseases of Old Age. P. Blakiston's Son & Co., Philadelphia).

631 E. 168th St.

THE DOCTOR IN COURT.

BY

JOHN J. A. O'REILLY, M. D.,
of the New York Bar.

I. His Personality.

This series of articles, five in number, has been written for the information of many, the correction of some, and as an appeal to all who enjoy the distinction which the title "doctor" carries with it, to lend their influence to the rehabilitation of the science of medicine in its relation to the law of the land, in the person and through the personality of the medical witness.

The medical-witness-of-fact is a distinct and essential part of every civil or criminal case in which the disease, injury or death of a human being is material and relevant; the medical-witness-of-opinion, or the expert medical witness, so-called, becomes essential only when a medical fact is in issue either as to its character or its permanency. When the functions of these two separate and distinct elements of a medico-legal case are assumed by one person, and this is the condition in the vast majority of instances in our courts, the position of the witness becomes what is known in law as "fiduciary," that is, that in the nature of things the opportunity for accurate knowledge of such a medical fact as the presence or absence of poison, for example, in a human body is greater in the analyst, who has the organs before him, than in the humble lay citizen whose proximity to a deceased makes him the logical defendant to a criminal prosecution under the legal rule of "exclusive opportunity"; hence the one whose relation is *fiduciary* is charged with the absolute duty of exercising his best judgment and circumspection without regard to the desire of either party to a litigation, whether that litigation be civil or criminal. Let me make this still clearer. The analytical chemist who examines the organs of a dead person for poison at the direction of a court, made upon the recital of a suspicion arising in the mind of an individual, is *the only one* who has an opportunity to acquire knowledge of a medical fact, and to apply to that medical fact his judgment as to its competency as a cause for death. He is charged with knowledge, for instance, that arsenic is a common impurity of bismuth subnitrate and the mere discovery of arsenic in a mass of bismuth compounds coating the walls of an intestinal tract is not sufficient in law or in conscience to warrant a diagnosis of death from arsenical poisoning; he must go further and determine that there was sufficient of that arsenic absorbed to accomplish the death of that person; he must be *sincere* in his contemplation of his fiduciary relationship to the state and the individual and he must not permit himself to indulge in presumptions which will strengthen the prosecution against a helpless, innocent person, nor must he permit himself to indulge in presumptions that weaken the prosecution against one who may be guilty as Cain; in plain English "it

is none of his business" and can not become his business unless a specimen of bismuth legally identified and legally connected with that dead body is submitted to him for analysis and fails to show an arsenic-impurity-percentage compatible with the conditions within that dead body; and when I say "legally identified and legally connected" I mean that he, the analyst, must interpose the scientific *dignity* of his sacred profession between the zeal of a prosecuting officer and his staff to satisfy the cravings for sensation in the reportorial rooms of the Fourth Estate—and the potential defendant who looks to him for a square deal, and insist that he be "shown" just how the alleged specimen is material in his work, lest perhaps one who holds another's life lightly might secure from him an opinion which would be so dramatic as to sway a jury to conviction of a perfectly innocent person. Does this seem overdrawn? Then let me say to you that upon the affidavit of a professional man of standing a body was exhumed and found to contain large quantities of bismuth with traces of arsenic and that *some arsenic had been absorbed* and that the bismuth subnitrate had been bought to correct the diarrhea of a gastro-enteritis arising from a purely innocent cause, and yet there was naught between an innocent citizen of the state and indictment and almost certain conviction upon purely circumstantial evidence but the conscience and professional sincerity of the analyst, and that all this occurred at a time of the year when the newspapers were hungry for a sensation and would have recked but little the mental anguish of the potential defendant.

But you will say this is not the "doctor in court," it is the "doctor at the autopsy or in his laboratory," but let me remind you that the sincerity and dignity of a medical man is not a garment to be brushed and donned or doffed and hung upon a nail behind the door; they are all that there is of himself in his domination of that bugaboo of human character, the "personal equation," and precisely as he lives them in the laboratory, in his office, or at the bedside will he be measured as worthy by the jury of plain honest men who must pass judgment upon his observations and the opinions which grow out of those observations . . . . What matters it to the jury if the medical witness has just come from the barber's chair and his beard is gracefully trimmed, his clothes brushed, his shoes bright and his glasses adjusted so as to produce the best effect of the deep-set eye of the student of profound lore, the jury wades right through all that and looks into the heart of him for sincerity or deceit, and if the medical witness be lacking in the sincerity and dignity of his order they will discard his opinion with as much contempt as we consign to the waste basket the mining prospectuses which reach us in our morning mail.

The medical witness who is conscious of his sincerity may take the witness chair with all the dignity of a prince of men, but he must still further control his personal equation lest his mental and moral rectitude make him "lean over backwards"; he must draw a sharp line of distinction between pride in his personal decency, and conceit in his superior knowledge and he must come right down to Mother Earth and bear in mind that the members of the jury have not had his opportunities for acquiring medical knowledge (else, under the law they would be exempt from service in the jury box); he should be democratic in the sense that he must meet the judge, counsel and jury on the plane of common sense, and when

he means a headache he must say "headache" and not a cephalalgia; and if he should let slip the word "synovitis" he must hasten to make clear that he means a sprain; and when he means the first, second or third joint of a finger, let him say so and not mystify and annoy a jury with "the surgically proximal, mesial and distal phalanx" as I have actually heard in court. Let him talk common sense to the common people who, for example, have hosts of friends over sixty years of age for whose mentality they have a profound respect, but are forced to sit in a jury box and listen to a man (who qualifies as an examiner in lunacy and an expert in insanity) say under oath, in the presence of a learned judge, who is near to the age of retirement, that "everyone over sixty has more or less senile dementia." Let him not testify to an upward and backward displacement of both bones of the forearm and the necessity for anesthesia for reduction only to find that lay witnesses of no great education observed the plaintiff a few minutes after the accident with the injured arm resting at right angles and supported by a generous abdomen. Let him be frank and earnest with the jury; let him support by honest argument the conclusions which he had reached in regard to a medical fact and leave the jury to be the judges between him and an aggressive or insolent counsel; if he be sincere, if he be dignified; if he present his views in plain simple words to plain honest men his personality will so impress itself upon them that the ends of justice will be attained and the doctor will be at peace with his conscience.

II. His Duty to Judge, Jury and Parties.

When the personality and ability of a doctor appeals to an attorney for plaintiff or defendant in either a civil or criminal case and the doctor is consulted, it is his privilege to give or withhold his consideration of the facts in issue; having consented to consider those facts it is clearly his duty to be frank with the attorney who has retained him to be partisan to the extent of advising him what is best to be done under the circumstances .... for example:—a person is injured and the potential defendant to an action for negligence retains a physician to examine the victim of the accident and that physician finds an ugly, lacerated wound on the dorsum of the foot, large in extent but not sufficiently deep to involve the tendons or to ultimately modify the function of that foot; his knowledge of the reparative process tells him, however, that repair can only be accomplished by means of skin-grafting and, knowing the ugly appearance of a skin-graft-scar, it is within the scope of his sincerity and dignity as a physician to advise an equitable settlement of the claim, lest a jury, impressed with the ugliness of the scar, should amplify the damages beyond the point warranted by the seriousness or permanency of the injury and thus work an injustice to the defendant; it is then, of course, up to the lawyer to determine whether the element of liability in the particular case involves his client to an extent which will make it the part of wisdom for him to follow the doctor's advice, and so settle.

When, however, a medico-legal case has reached a point where the issue must be determined by a trial, it is still proper for the medical man to so instruct the lawyer who has retained him that he will be prepared to meet an attempt on the part of the plantiff's lawyer or doctor to exaggerate the injury; or the defendant to minimize it.

When the case has actually come to trial there is no warrant for further partisanship; the sincerity and dignity of his calling and the exclusiveness of medical knowledge which he has acquired by study and experience imposes upon him the obligation to be impersonal and impartial, discreet and dispassionate; from the moment he is sworn, his function is threefold and he must apply his knowledge of medicine so that he may serve as interpreter for the learned judge, instructor to the jury of plain every-day citizens who know no medicine, and arbitrator between the parties who have a right to rely upon the honor of his order to insure them a scientific analysis of the medical facts which have been submitted to his judgment.

In return for this service to the cause of justice he is entitled to the protection of the court, the respectful attention of the jury and the courtesy of the counsel and he may with propriety insist upon all three tributes to the exalted science of which he is the exponent; no judge may compel him to answer a question designed to entrap him, but must compel counsel, upon the demand of the doctor, either to divide a question into parts or to permit a full and free explanation of the answer to the question; it is extremely rare to find a jury that will not give the closest attention to the testimony of a physician, for, enshrined in the heart of each is some physician of whose love he and his family are sure, and they manifest their love for him by showing respect to all members of his order unless by their individual conduct in society or on the witness stand, they sacrifice their claim. The lawyer, however, frequently lets *his* partisanship subordinate his discretion and resorts to brow-beating and sarcasm and innuendo in an effort to nettle the medical witness to his undoing, and far too often he succeeds in his plan because the doctor permits his conceit to subordinate his dignity and meets the discourtesy of the lawyer with the very partisanship for which the lawyer has been fencing and against which the doctor should be always on his guard. Now it must be borne in mind that the opinion which the doctor has formed from his consideration of the medical facts is an element in the trial of a case which he has a right to frankly state, forcibly impress and earnestly support with all the knowledge at his command. No one should expect him to know everything in medicine and when he does not know the answer to a question, a frank "I do not know" does not detract a particle from his own dignity or from the respect in which he is held by judge and jury—for instance, if a lawyer ask him "What structures pass through the foramina in the sphenoid bone?" he must not forget that the jurymen are not familiar with foramina or with the sphenoid bone and that the question is scarcely asked perhaps until they have labelled it "irrelevant," and if the doctor answers "I can not name them" the incident is closed so far as the jury is concerned, but if he resents the question (which we all know to be tricky and absurd) because he feels that it reflects upon his ability, it acquires dignity in the minds of the jurymen, for they are quick to recognize that the mantle of dignity and laudable pride has been brushed aside by the lawyer's thrust and beneath it they recognize the small clothes of conceit; let the doctor bide his time and the lawyer, capable of such trickery, will try to follow up his supposed advantage, by question or by comment, and thus make it compatible with dignity for the doctor to show the immateriality of that question.

When the opposing counsel submits a hypothetical question containing a group of evidential factors upon which his judgment tells him he must give an answer incompatible with the theory of the party in whose cause he appears, let the doctor bear in mind that the responsibility for the conduct of the case does not rest with him and that it is the duty of the lawyer to be on the alert for misrepresentation on the part of opposing counsel; let him answer honestly and sincerely and frankly, trusting to the jury for their recollection of *all* the facts, and to the counsel, in redirect examination to afford an opportunity to correct the apparent discrepancy and, at the same time, make clear to the jury the duplicity of opposing counsel. . . . . The slightest suggestion on the doctor's part that counsel has excluded certain evidential factors not only uncovers the doctor's partisanship but enables the counsel to drive that partisanship home and destroy the value of otherwise scientific testimony. The doctor is not a judge to pass upon the completeness or competency of the hypothesis advanced by one side or the other, and he must not assume to himself the function of controlling the conduct of a case, which the law wisely takes from the counsel and the jury and vests in one trained in the law who, you may be sure, is watching the trial with the greatest care lest his rulings merit censure at the hands of an appellate court.

When the doctor is testifying let him bear in mind, always, that his dominant function, in court, is that of instructor to the jury; let him talk *to* the jury (not the counsel); his experience in medicine—at his desk and at the bedside, will tell him at once if the jury is receiving the impression he wishes to convey; let him not be precipitous in making a smart answer which will support his conclusion when he is conscious that the opposing counsel has arisen for the purpose of objecting to the question; here, again, it is the court who has the right to rule upon the competency of a question and obviously, if a question be incompetent, irrelevant or immaterial, any answer to that question, precipitately flung from the witness chair, makes the witness an instrument of injustice rather than justice, and creates an impression in the minds of judge and jury that craftiness has crept into the personality of the medical witness, that he is not playing fair, and the condemnation which touches him extends to the entire order he represents.

"BLUE" BLOOD.

BY

ROBERT L. WATKINS, M. D.,
New York City.

We often hear the expression "blue blood"—it is a very old one, and we all know how the first families of Virginia and New England prided themselves on that possession; nevertheless, there is, in medicine, such a pathological condition. I have noticed it for many years, and a recent case reminded me of it so distinctly that I thought it worth while to write a few observations on the subject. For, though no doubt others have been impressed by similar facts, there has been nothing to my knowledge written under this caption.

The color of the drop of fresh blood taken for examination is of important significance. It is well known that blood from the venous circulation is blue, and from the arterial capillary, red. Blood from the wrist or lobe of the ear, because it is capillary is arterial, and thus normally red, while that from the end of the digits is

blue, or venous, and thus always abnormal; for here, anatomists tell us, the artery connects direct with the vein, without any intervening capillaries. It is, therefore, very important that, in examining the blood, the drop should be taken from one of the above mentioned places—the wrist or lobe of the ear. When such a drop is observed with the naked eye—macroscopically—as it flows from the wound, before it is placed on the glass slide, its color should be carefully noted. Experts can tell the various shades of color. If such a drop is dark blue it is a sure indication of either excessive gases in the intestinal tube or stomach, or decomposition or putrefactive processes going on somewhere in the system. If the drop is of the opposite extreme—crimson—it is indicative of excessive oxygen in the corpuscles, or possibly too thin blood, as in leukemia, and some cases of tuberculosis. The latter often alternates with the blue black condition, putrefactive products being present one day and absent the next, after being absorbed or thrown off.

As before stated, I was induced to write this paper at the present time because of a case I was treating a few weeks ago. It was a syphilitic case—although the patient was not aware that he was syphilitic, the blood and eruption showed it.

On the first examination the drop of fresh blood was blue, on the second, a week later, the blood was nearly of a normal red. This blueness, I have no doubt, was due to either the breaking up of the tissues, or probably to the excessive activity of the syphilitic germ or virus—the patient being at that time fully under the control of specific treatment.

It is not my experience to find this common in syphilitic cases, unless it is complicated with destructive changes in the internal tissues. In scurvy, typhoid fever (during its destructive tissue stage), in gangrene, always in phlebitis, asphyxia, apoplexy, paralysis, or during the presence of decomposing emboli thrombi, and so forth, the blood is always blue. In ptomaine poisoning and auto-intoxication this blueness is very distinct, and is a valuable fact for the general practioner to bear in mind, because it does not require a microscope.

I remember once diagnosing a case of doubtful cancer, and the blue blood, which I neglected to consider in connection with other symptoms, showed it to be autointoxication.

In diabetes the blood is generally red, or even scarlet; also in acute tuberculosis, especially of the miliary variety, it is also scarlet, while in the later stages of tuberculosis the drop is blue—if it should be red it is indicative of no decomposed tissue at the time in the system—at least not enough to counteract the excessive oxygen present.

Blue blood is always present where there is intestinal indigestion, with gases and decomposition of food.

As I remember, the few cases of typhus whose blood I examined some years ago, during the epidemic on North Brother Island, the drop of fresh blood drawn for examination was light red. It may be of interest to relate in this connection that at that time there seemed to be a "storm of dust"—very fine microscopic spots of dust would contaminate not only my blood specimens, but especially the glass slides, which it seemed impossible to remove. I have noticed this periodically since, with no apparent climatic cause.

Another observation I made at that time, when I evolved a theory in regard to the

rouleaux arrangement of the red cells. I theorized that, as the red blood discs were biconcave, this hollow allowed of a partial vacuum being formed between each of the cells as they moved about, and thus they hung together, side by side. Of course if the cells were not of good tone, and more or less elastic, this could not occur—hence the old theory that a rouleaux arrangement means good vitality is explainable.

I feel that much more could be written on the three subjects above mentioned—blue blood, dust in the air and rouleaux formation.

THE RELATION OF THE PHYSICIAN TO SOCIAL SERVICE.

BY

J. C. GITTINGS, M. D.,
Philadelphia.

Instructor in Pediatrics, University of Pennsylvania; Visiting Physician, Children's Hospital; Assistant Pediatric Physician, University Hospital.

The realization that hospital treatment has concerned itself too closely with the illness itself without sufficient regard for the patient, the conditions which produce the illness or the permanency of its cure—together with the growing appreciation of the importance of the prevention of disease as an integral part of medicine—have resulted in the development of the art, soon to become the science, of so-called social service.

Years ago, before the present conception of such work, a beginning was made in the discharge of some of its functions through the agency of the follow-up or visiting nurse. Some physicians—and probably more hospital managers—are convinced that the educational work of the nurse in the homes of the poor constitutes all the activity which the functions of the hospital permit.

As a counterpoise to this somewhat elementary view, Richard C. Cabot—than whom no physician has devoted more careful thought to it—describes social service as the child of the poor but honest parents, "philanthropy" and "charity." He believes that the essence and centre of social work, which corresponds to diagnosis and treatment in medicine, is the "study of character under adversity and of the influences which mould it for good and ill." The ultimate development of the science therefore would be "psychical diagnosis and treatment." Again, according to Cabot, the social worker becomes an expert in the understanding and management of the weaknesses and perversions of character, should command an expert's fees and should have his office hours and private practice, as well as his work among the poor.

In this conception the social worker, remains from first to last, a strictly non-medical agent.

While it is not hard to see the possible truth in this prophetic vision, the hospital, for some time at least, will furnish the greatest opportunity, for the activities of social service, and the eminence of the expert in social work—as in medicine—must be attained through long years spent in the practical work of the clinic. If we are to conceive of its chief function as essentially psychologic what becomes of the other requirements of hospital service which demand relief for material ills?

The more we study the needs of the hospital patient, the more complex becomes the problems, not alone of medicine, hygiene and psychology, but of sociology, of economics, of ethics, of law, of eugenics.

For example, the convalescent choreic child is found to live in an overcrowded, noisy tenement, under constant hectoring by an overworked, undernourished, psychopathic mother who is struggling to bring up a family of eight on resources scarcely fit for two and whose drunken husband's wife-beating predilections are especially manifest during her months of pregnancy —not an overdrawn picture, and yet, from a broad social standpoint, the vital problems in each phase of it almost defy solution.

There will be no absolute agreement as to the best theoretical means for the prevention of such conditions. They involve too deeply the great questions of the limitations and defects of human nature and of the duty of society toward its weaker members. Practical assistance must content itself with relief, so far as possible, and with preventing the recurrence of these conditions in that family group.

As a general rule it may be stated that there is no social problem of any complexity which does not, first or last, become concerned with questions of health. In this conception of health, however, mind as well as body should be included.

Charles W. Burr recently proposes to restrict the meaning of the formal term "psychology" to "the study of how the normal brain thinks." It is clear that the study of the effects of poverty and social ills upon mental processes and development constitutes a separate division of the main subject, with which sociologists are particularly concerned. It is equally clear, however, that many of these psychical-social characteristics have been known to physicians long before modern sociology even was conceived. Every trained alienist must know them before he is competent to diagnose adequately mental aberrations and even the general practitioner acquires a practical knowledge of the mental processes of his patients although it would be difficult or impossible for him to formulate such knowledge. With the increasing appreciation of the medical importance of psychical effects and causes, therefore, psychology and medicine can never be completely disassociated in medical-social activities!

Since disturbances of health, in its broadest sense, are such important factors in the etiology of social ills, and since hospitals, for the time at least, have extended their functions so as to embrace as many problems of health as circumstances will permit, why is it that physicians, as a class, are not assuming greater responsibility in directing the social work of hospitals instead of leaving it largely in the hands of layworkers and laymanagers? Is it because physicians have failed to grasp the basic value of this work and its direct relation to medicine? Or, after due consideration, are they convinced that the work is chiefly a sociologic measure and therefore have left to lay-workers its organization, development and direction?

In order to get some light upon this, in February, I sent a questionnaire to members of the American Pediatric Society and other physicians interested in pediatrics. I may take this opportunity for expressing appreciation for their kind co-operation— and also for the friendly criticism and advice of Dr. H. R. M. Landis, director of the Phipps Institute, University of Pennsylvania.

Social service departments have been installed in one or more hospitals in 11 out of 18 cities from which reports have been received. Out of 69 hospitals, 29

maintain more or less complete social service and 9 perform follow-up work with nurses; 31 or 45% apparently make no attempt at after-care although in a number of instances this deficiency is about to be corrected. If the attempt were made to secure data on all hospitals in the United States, there is little doubt that this percentage of "deficients" would be nearer 95 than 45%.

In every instance physicians approve of social service—only a few stipulating that proper management is essential to success.

The failure of so many hospitals to adopt it probably should be laid to lack of resources or to conservatism on the part of managers, rather than to lack of initiative on the part of the medical staffs.

It is of interest to note the attitude of physicians toward the records of social service investigations which can be shown in the following table:

	Social service records routinely incorporated in or added to medical histories.	Occasionally added if considered important.	Not added to medical histories but kept on file in the social service department.
House cases,	5	5	13
O. P. D. cases,	7	7	9
Total,	12	12	22

In addition to records, the practice in most dispensaries provides that the social service nurse attend the clinics and make verbal reports. While this information enlightens the physician at the time, it must often fail to be recorded and therefore loses much of its statistical value. Nor is it sufficient for records to be on file in the social service archives, since they are not so available and, consequently will not be so frequently consulted. The social conditions of a patient as they affect health, disease and treatment should be recorded with the medical history of that case. Irrelevant records of social administration, sources of relief, etc., should be filed separately in the social service department, with the complete social record.

In order to determine the physicians' conception of social work, this question was asked:

"Recognizing their close inter-relationship, which do you consider the more important—the medical or the sociologic function of social service work in hospitals?"

Apparently there was some difficulty in interpreting this question. The replies were as follows:

Sociologic 22
Medical 12
Medical (for children) 1
Medical (if hygiene and sanitation are included) 1
Medical from the individual standpoint; sociologic for eliciting information 1
Equal or inseparable 7
Not comparable 1
Variable depending upon sociologic conditions 1

The balance seem to be in favor of the view that the sociologic functions are more important.

As a corollary to this we find that in many instances physicians take no active part in the general direction of social service operations.

For example:

SOCIAL SERVICE DEPARTMENTS.

Directed by hospital managers through head workers and superintendent, 12 hospitals.

Directed by head worker, alone or with ladies' aid societies, 3 hospitals.

Directed by head worker, with "co-operation of physicians," 3 hospitals.

Directed by physicians, head worker and superintendent, 3 hospitals.

Directed by executive committee consisting of representatives from board of managers, medical staff, ladies' aid societies and the head worker, 3 hospitals.

It is uncertain whether this failure of physicians to assume some of the responsibility of direction is due to disinclination or to lack of opportunity.

To sum up, the evidence shows:

1. That physicians approve heartily of social service, and appreciate its value.

2. That hospitals are somewhat slow to take it up.

3. That physicians consider it more as a sociologic adjunct to, than as an integral part of, medicine.

4. Partly on this account, partly for lack of opportunity and for unknown reasons, they often fail to assume responsibility for directing it.

Let us examine more closely the questions of function and direction:

In the 7th annual report of the Social Service department of the Massachusetts General Hospital a table is published to show a selected group of 26 diseases and the social treatment which they demand. This list comprises, tuberculosis, typhoid, syphilis, functional nervous disease, varicose ulcers, etc.—diseases which form the bulk of the day's work at a dispensary. Of the various forms of social treatment, those which could be performed chiefly on the basis of sociologic training I have grouped as sociologic functions; those which a trained nurse could best perform, as medical functions:

SOCIOLOGIC FUNCTIONS.

	Of special importance.	Of occasional importance.	
1. Support for patient or family	8	10	
2. Help in finding or changing work..	5	6	
3. Persuasion, encouragement, consolation, training.	4	10	
	17	26	
Total			43

MEDICAL FUNCTIONS.

	Of special importance.	Of occasional importance.	
1. Prevention of contagion and discovery of cases in home	4	6	
2. Advice and guidance in plan and of treatment....	7	11	
3. Nutrition and hygiene, person and home	3	13	
4. Home nursing.....	3	9	
	17	39	
Total			56

The figures represent the number of diseases in which the functions were required, and show a slight preponderance in favor of medical functions. By ruling out nine adult diseases such as cancer, to make the list more applicable to children, we find the medical preponderance even greater.

DISEASES FOUND IN CHILDREN.

	Special Importance.	Occasional Importance.	Total.
Sociologic Functions,	11	18	29
Medical Functions,	14	29	43

Let us add to this the feeding cases of a babies' dispensary:

	Special Importance.	Occasional Importance.	Total.
Sociologic Functions,	11	20	31
Medical Functions,	17	29	46

In a paper before the National Conference of Charities and Correction in June 1912, Michael M. Davis, Jr., director of the Boston Dispensary has tentatively classified the needs of their 30,000 annual patients. Roughly he divides them into four classes:

Type one. Where social problem is evident and acute.	Call for medical social case work.	25 to 30%
Type two. Where social problem is not acute, but the disease is dangerous to others.		
Type three Where there are no acute social problems (poverty, ignorance or employment) but disease requires faithful attendance, on the part of the patient.	Call for social work, but mainly by clinical methods.	40 to 50%
Type four Where there is no need for social service, 25%		

Again the preponderance would seem to be in favor of medical functions.

Such evidence is significant coming as it does from institutions in which social service operations have reached a high degree of development.

I am inclined to believe that, broadly speaking, the chief functions of social service in general hospitals are medical. That this is true of children's departments or hospitals, I am convinced.

For work among children the functions of social service may be defined as follows:

1. To instruct in home-treatment of out-patients and to secure their regular attendance.

2. To prevent the occurrence and recurrence of disease by instructions and demonstrations in the home on hygiene, dietetics and sanitation.

3. To detect and guard against contagious disease.

4. To detect other diseases, including mental backwardness, etc., and to advise and direct their proper disposition and place of treatment.

5. To instruct in pre-natal care.

All of these are strictly medical functions.

6. To secure trustworthy social data in the home and to carry out special medical-social research. The value of these investigations is just becoming appreciated.

This function is more medical than sociologic.

7. To overcome demoralization in the home by instilling hope and courage, renewing confidence, etc.

8. Conservation of resources; finding or changing employment; providing apparatus and emergency supplies; support for patient or family; moral suasion and instruction, etc. The last two require purely social work.

The amount of such social work which a children's hospital may perform will depend in part upon its policy and resources, in part upon the qualifications of the social worker—which suggested the following question:

"Who is the best agent to have in charge of social service departments—a graduate nurse trained in social service work or a lay social service graduate who has not had training as a hospital nurse?"

On the basis that other qualifications were equal, 40 physicians preferred, without other stipulations, the trained nurse; 2 preferred a nurse for work among children; 1 preferred co-operation between nurse and lay-worker; 2 preferred a nurse if only one worker be employed; otherwise the lay-woman; 1 preferred the lay-worker; and 1 believed that each worker must be judged on an individual scale only.

Undoubtedly the personal factor is of first importance—no work requires greater patience, optimism, humanitarianism, tact, judgment and, above all, common sense. The worker must know the characteristics of the people whom she is trying to help;

there is no greater cause of ineffective work than failure to appreciate their viewpoint. She must be able to grasp the essentials of the problems and not be misled into wasting time and energy upon details whose correction should be deferred or possibly not be done at all. Social rehabilitation usually should be evolutionary, not revolutionary. In addition to such qualifications, the head of the department should possess executive ability, the faculty of inspiring work, the ability to preserve harmony and, especially, mental poise. In developing such a combination of attributes education is a most important factor.

For this reason we find so many heads of social service departments among laywomen, whose educational advantages are so much better than those of the average type of trained nurse who is, first of all, a wage-earner.

Granted the necessary personal and educational equipment, it would seem that the training in a large general hospital supplemented by sociologic training must furnish the best preparation for medical-social work. The nurse learns to know the people before she learns sociology, and, at the same time, is acquiring essential knowledge of disease and treatment. Women's colleges teach theoretical sociology but unless the student learns to know intimately human-nature of the slums, her equipment must be as incomplete as is that of the medical student without bedside instruction. Social settlements may teach practical sociology but both college and settlement fail to supply knowledge of disease and its treatment.

For the preference for nurses for medical-social work, therefore, there seems to be good grounds.

The amount of theoretical good which social service can accomplish is infinite. How efficiently the work is being performed in various clinics is difficult to judge. The numbers of cases treated and the cost per case furnishes a wholly inadequate basis for comparison. For example, I find that the lowest cost per case is 35 cents where the operation is carried on in a congested district at close range and is, presumably, follow-up work; the highest cost per case is $9.50 where the social treatment is thorough and is carried to completion. Apart from these two extremes the average seems to be about $2.50.

From my own experience, lack of efficiency and consequent high cost per case will be due to failure to properly organize the department and to outline its plan and scope of operation and what may be called its technique. While too much system at times leads to a deadening routine, there is no doubt that we can accomplish results with a distinct saving of time by the application of business methods in designing information blanks, collecting and recording information, filing systems, etc., and in the organization of the social service staff, disposition of workers, etc. Efficiency engineering, of which we hear so much of late, can be applied to every branch of endeavor—philanthropic as well as gainful.

It is not sufficient to carefully organize and then relinquish the entire administration to a head-worker. While she may receive cooperation and advice from any of the physicians to whom she applies, the best interests of the department demand the directing services of a committee composed, preferably, of representatives of the medical staff, board of managers, and, if desirable, of the ladies' committees, with the head-worker.

As Thomas B. Cooley points out (Trans. of Sections on Dis. of Children, 63rd an-

nual meeting of the American Medical Association, June, 1912), "social work is becoming so popular, that there is some danger of its being attempted without the skilled direction which is essential to success." "Indifference on the part of physicians and overzealousness on the part of lay-philanthropists and health authorities may lead to miscarriage and waste." The need of physicians in the control of such functions as medical-social work would seem to be self-evident.

In the annual report of the well-organized social department of a prominent hospital, there may be found these sentences, written by a physician: "Doctors are as untrained in social diagnosis as laymen in medical diagnosis. Put a lawyer to tuning pianos or a cook to selecting school teachers, and you have the parallel."

Apparently this was part of a commendatory description of social work, and was not intended as an arraignment of the doctor. Whatever its motive in the main, its truth cannot be questioned. As a class we have been slow to recognize the importance of many of the lessons taught by sociology and have allowed our study of disease, the figure in our lime-light, to blind us to much of the background out of which disease emerges.

The art of medicine of yesterday was too conservative in its conception of its true functions. So far as it has gone, the prevention of disease has proved to be one of the greatest achievements of the science of medicine of to-day. We must extend preventative principles so as to include, not only the assault of contagion but also the less spectacular but no less dangerous undermining of faulty habits and environment.

Between prevention of disease and preservation of health there is no essential difference and surely the physician and not the sociologist should become the logical arbiter of all the problems relating to health. Just as we are developing the science of public health and have supplied trained specialists to health boards, so we must be prepared to develop the science of medical sociology and its expert exponents, to whom will be intrusted the amelioration or eradication of social ills as they affect health. Social service points the way to this development, and both physicians and the general community owe a large debt of gratitude to the pioneers in medical-social work.

The evolution of the new type of sociologic physician should be by and through the activities of social service. He will have received some training in sociology and its allied branches before taking up his medical studies. In the medical school he will devote much more time to hygiene, psychology and eugenics than is at present allotted to them. After his hospital service, by post-graduate work he will equip himself more thoroughly in these branches and will then be sufficiently expert to be placed in charge of hospital social service at salary. His workers will be men as well as women—for the problems of sociology as they apply to men have, as yet, received no adequate attention. By virtue of his medical training he will be able to effect economy of time and effort. Much of the work of social service as at present organized is probably wasted because of the inability of even a nurse to discriminate and pass judgment on medical problems. For these, he will be on the court of first resort—and the journey to other courts will, quite frequently, be rendered unnecessary. At the same time his broad

preliminary education and his special sociologic training, will safeguard him from the mistake of narrow vision which handicaps the student of disease per se.

Surely such organization and administrative procedure will develop hospital social service to the highest degree of effectiveness.

On the other hand, I do not believe that the hospital ultimately will prove to be the logical agent for the constructive work of medical sociology. On the community itself must devolve public relief and education, the germs of which we see in social service.

And thus again private philanthropy will point the way to public duties.

The agent of the community must be its Health Department, whose guiding hand would be that of the medical sociologist. This Health Department of the future must extend its functions so as to include every activity which concerns the health of the community—most of which are now attempted by private agencies—backed by the authority of the law, the health officer's powers of correction and readjustment would be infinitely greater than those of unofficial philanthropy.[1]

3942 Chestnut Street.

Alcohol is a well known remedy for burns from carbolic acid. It is said that cider vinegar is also a dependable local application to neutralize phenol burns. When the poison is swallowed diluted vinegar is of value in conjunction with other remedies and measures.—*Med. Summary.*

[1]Since this paper was written the article by A. R. Warner (*Jour. Am. Med. Asso.*, March 8th, 1913, p. 738) first came to the author's attention. For the past year the dispensary and Social Service Department of the Lakeside Hospital, Cleveland, have been in satisfactory operation under the executive control of a medical director.

THE RECENT INTERNATIONAL CONGRESS OF PHYSICAL EDUCATION HELD IN PARIS.[1]

BY

M. S. GABRIEL, M. D.,
New York City.

The International Congress of Physical Education and Sport was inaugurated in Paris on the seventeenth of March, 1913, in the presence of the President of the French Republic and delegates from 26 nations. The Congress lasted four days.

The work of the Congress was divided into two parts—(1) reading of papers, and (2) demonstrations. There was also a beautiful and large exhibition of drawings, paintings, statuary and apparatus to illustrate gymnastics, aeronautics, Alpinism, tourism, yachting and rowing.

The demonstrations were followed with the keenest interest. Several countries had contributed to render the demonstrations of various gymnastic methods complete. France had twelve groups, civil, military and marine. There were four groups from Belgium; one masculine and one feminine group from Denmark, one group from Italy and one from Sweden; the English method was demonstrated by a group of 30 young women, and Germany had sent a group of 10 young women. The gala performance of demonstrations took place in the Velodrome d'Hiver. The last gathering of the Congress was devoted to a banquet, followed by a musical entertainment. As I was the only American member of the Congress, the pleasant duty of making a farewell speech on behalf of America devolved upon me, and I spoke, in substance, as follows:

[1]Read before the Med. Asso. of the Greater City of New York, June 2, 1913.

"Frenchmen: You have many friends and allies among the nations of the world, but you have only one sister, and that is the United States of America. The American Republic came into birth in the arms of France. There exists naturally, and there always will exist, a bond of intimate friendship between France and America. It is therefore with the sincerest sentiments that I congratulate the French Government and the medical faculty on the brilliant success of this great Congress, through which the efforts for the physical regeneration of the human race will receive a new impulse, and I raise my glass saying: Long live France!"

Mr. Chairman! Two fundamental ideas are now guiding the efforts of men for the physical regeneration of the human race. One is the conception of *cleanliness,* in its modern sense, and the other is *physical culture*. Cleanliness is the result of the discovery of the pathogenic rôle of microbes. Our streets and houses, our drinking water and our milk, our surgical instruments and dressings, our hands and our mouths are nowadays tending to become otherwise clean that they used to be until Pasteur's day. We are better able to prevent contagious diseases and check epidemics by preventing the spread of contagion. All this is marvelous, indeed, but after all, it is far from being a complete triumph of science over disease. There are other diseases than the contagious ones. Civilized humanity, even when not unclean outwardly, is unhealthy because it leads an unnatural mode of life. Modern civilization imposes a *sedentary* mode of life upon a large proportion of the people, which means lack of proper exercise, defective breathing, defective circulation, defective digestion, defective sleep, leading to diminished vitality of the organism and a lamentable susceptibility to diseases and ailments of all kinds. Yes, civilized mankind is constantly half-sick, much more diseased than is apparent. Take diabetes, for instance. It is far more frequent than is generally supposed. Nothing is more striking than the experiments of Dr. Worms who, examining the urines of 607 individuals occupied in manual work in factories, requiring often an intense display of muscular and respiratory activity, found them free from sugar, while the urines of men of science, physicians, artists, business-men, functionaries, in a word, individuals engaged in intellectual work, he found sugar in 10% of the cases, and repeated analyses proved them to be not alimentary glycosuria, but true diabetes.

Ten per cent. of such men suffering from diabetes! What is the state of the remaining ninety per cent.? Something the matter with all of them. All are unhealthy. All men who do not take exercise enough are unhealthy. And no wonder that it is so. The human organism has performed its evolution through thousands of centuries under conditions of physical activity in the open air, that is to say, under conditions of savage or barbaric life. Hunting of animals and tilling the soil implies walking, running, leaping, climbing, lifting, throwing, defending, swimming. The great hygienic problem of our time is therefore so to combine the exercise of savage existence with the occupations of civilized life as to insure the highest degree of physical health together with the highest degree of intellectual and moral health. There is already an intelligent endeavor seeking to solve this hard problem. The necessity of exercise for both sexes and at all periods of

life is being understood, hence the increasingly growing importance accorded to physical culture in our educational system, and the extraordinary interest of international congresses on physical education.

It is in connection with this movement in favor of physical culture that in recent years the value of massage or passive exercise has been appreciated by the medical profession. Massage is a therapeutic agency. *Active* exercise is both curative and preventive. My personal experience shows that in many a case of lingering ailments or delayed recovery of good health the one element lacking for the final triumph is exercise. The sufferer must be urged to acquire the habit of regular exercise.

Experience has, moreover, shown to me that walking, while good and necessary for all, is not sufficient exercise for everybody, nor can it be practised enough by the majority. A more energetic exercise than walking is in most cases necessary. There must be a considerable display of activity in a comparatively short time. Half an hour spent in swimming, bowling, in a game of tennis, dancing, rowing will have more effect than walking for hours.

Finally, experience has shown to me that it is not easy at all to have our patients acquire the habit of regular exercise in our cities because of the absence of accommodations. Tennis courts, swimming in sea or river, while excellent exercises, are available only in summer, and even then available but for a small proportion of the population. A physician's prescription for exercise should be realizable at all seasons and by persons of little leisure and modest means. Everybody needs to exercise regularly, and everybody should have the facility to do so. Thus only can the human organism attain the highest degree of strength and health. Physical exercise for everybody is the necessary means for improving the soil of our organism at the same time that we endeavor to banish the seed of contagious diseases from our social surroundings. It will not avail much to improve the cleanliness of the external world if our internal world, our internal streets and circulations are not in a normal state. I will, therefore, Mr. Chairman, terminate my report by placing before the Association the following motion:

The Medical Association of the Greater City of New York, at its meeting of June 2, 1913, expresses its wishes that in the City of New York and in all large cities, a sufficient number of gymnasiums be created where persons of both sexes may, at all seasons and at a nominal cost, take regularly exercises appropriate to their individual requirements, and respectfully invites the earnest attention of boards of health and of the charitable millionaire to this urgent need of public health.

A CASE OF GASTRIC "REGURGITATION."

BY

JULIUS W. WEINSTEIN, M. D.,
New York City.

M. G.—Female, 19 years. Single; housework.

Habits.—No liquor, no beer, no coffee, no tea, chews her food well, eats a lot of sweets.

Family History.—Father dead, suffered with indigestion for years.

Past History.—Had measles, chickenpox, whooping cough and inflammation of the bowels in childhood. She has been laid up every winter with LaGrippe for two to three weeks for past ten years.

Present History.—Three years ago, she became nervous and started to suffer with headaches. About a year later she began

to have attacks of vomiting. Immediately after a meal, she feels as though there were a lump in her stomach and that some part of the food is passing out. She then feels the food coming up to her mouth and she spits it out. Five minutes later another similar spell of "vomiting" comes on. Altogether she "vomits" about five times, except in the morning when the attack comes on late in the stage of digestion. She belches a lot of gas. Physically complains of marked weakness. She has cramps over the appendicular region. There is no loss of flesh, no cough, her appetite is good, and the bowels are very constipated.

Physical Examination.—Rather underfed and anemic looking. Heart, lungs, liver, spleen normal. Pulse 100. Urine specific gravity 1018. No albumin or sugar. Palpation of abdomen shows marked tenderness over the appendicular region.

This girl is one of a goodly number of young girls and boys who come complaining of chronic vomiting. They vomit no matter what they eat and irrespective of the the quantity or quality of the food. The vomiting is repeated several times after each meal with distressing regularity. Although they have certain digestive disturbances and are usually badly constipated, their appetite is good and they do not lose flesh.

The physical examination does not give us much information. Uusually the functions of the stomach are normal, but there is one thing often noticed, and that is a little tenderness over McBurney's point.

Careful investigation usually discloses the fact that these patients do not vomit at all, they simply regurgitate.

What is the distinction between regurgitation and vomiting? Vomiting means expulsion of food from the stomach past a closed cardiac sphincter. Regurgitation means expulsion of food from the stomach past an open cardiac sphincter. Vomiting is always preceded by nausea. Regurgitation is not. Vomiting is preceded by considerable straining and expulsive effort on the part of the patient; while in regurgitation the food comes up very easily without the slightest effort. When vomiting the patient usually brings up or throws up a considerable quantity of food once or twice. Regurgitation repeats itself several times every 4 or 5 minutes. The patient all of a sudden feels that his mouth is full of food and he spits it out. This is repeated usually about five or six times.

Why does this girl regurgitate? Why does she not lose flesh? In order to answer these questions we must understand the physiology of the mechanism of the opening and closure of the cardia of the stomach. The cardiac sphincter in the first stage of digestion is open and food keeps oscillating from the stomach into the esophagus for a distance of three or four inches up or down. This goes on for twenty minutes or so when this stops, because the cardiac sphincter closes. What causes it to stop? It is the appearance of free hydrochloric acid in the stomach. There is a spot, a reflex, just below the cardiac sphincter, which when touched by a free acid, causes the cardiac sphincter to close. The first acid enters into a chemical combination with the food and is therefore known as combined acid, and it is only after the affinities of the food for acid become saturated that the acid becomes free and this free acid closes the cardiac opening.

The reason why this girl's food regurgitates is because the food is thrown way up into the mouth instead of only three or four inches up the esophagus. The reason she does it during the first thirty-five minutes instead of only during the first twenty minutes is because there is a disturbance in the mechanism by means of which the car-

diac opening is ordinarily closed. The patient does not lose flesh because her loss of food is not as great as it seems and she rarely discharges more than five or six mouthfuls of food altogether.

Treatment.—One of the most difficult propositions in gastroenterology is the permanent cure of these cases. The physician may say he is going to close the cardia in order to prevent the regurgitation, and turn to hydrochloric acid, but while this works in some cases, in the great majority it is a failure. The reason is plain. We cannot supply the hydrochloric acid in the quantity that the stomach requires, for, as a matter of fact, it needs an enormous amount. One gram of pure hydrochloric acid is capable of saturating only eighteen grams of albumin, which is slightly over half an ounce. That has been definitely proven by Von Noorden. We see, therefore, how impractical it is to supply the stomach with enough acid at the right time and in the right way. The question might be asked, how does the stomach accomplish what it does under normal conditions? A study of the physiology of the stomach gives us our answer. Nature's method of supplying and distributing hydrochloric acid is such that we cannot dream of duplicating it. The stomach is lined with numberless little glands each of which pours out hydrochloric acid in a tiny stream at the exact moment needed. Who can duplicate that? I have had this patient take twenty drops of HCL before eating, twenty drops of HCL during the meal, and twenty drops of HCL at the end of the meal, but this caused irritation and distress with little effect on the regurgitation. I have also used belladonna with morphine but without success. Many of these unfortunates are operated under a mistaken diagnosis for appendicitis, but without any amelioration of their symptoms.

Success is sometimes obtained by tonic treatment, change of scene, electricity, etc., but each case is "a law unto itself" and they are a most trying class of patients to the physician in attendance.

THE ANNOTATOR.

Urban and Rural Life from the Viewpoint of Sanitation.[1]—An editorial notes the well known fact that the drift of population is toward the cities in the new world as well as the old. P. H. Bryce has shown that in Canada even more than in the United States, and in spite of strenuous governmental efforts to place immigrants upon the land this fact obtains, and that while the total increase in population in the past ten years has been 34 per cent, the urban increase has been 62.5 per cent.

In this country and in Australia urban population is increasing with great rapidity. In Europe the flocking of the people to the towns is causing alarm to those who are looking ahead, while in Great Britain the situation is acute from almost every point of view.

Europe is trying to relieve congestion by emigration but the problem is not solved when the emigrants still crowd into the large cities in the countries to which they may go. The land must be cultivated but Asiatics who would be glad to do such work are unwelcome in every cultivable where cultivable land is still abundant.

The condition is serious, white immigrants will not settle on the land and black and yellow ones are not permitted to do so. City life means greater strain than country life and consequently an inferior race for the immediate future. Back to the land means that which is for the best interests of health, physically, morally and mentally.

This is surely a condition and not a theory. It is going to require the best thought of the next few years, and the wisest legislation to control these mighty

[1] *New York Medical Journal*, April 19, 1913.

social problems which are world wide in their scope. It is going to mean some rather startling social changes within the experience of many who are now living.

Medical Asepsis.[1]—C. V. Chapin declares that the fifth theory is dead and that we now know that diet is very rerely the direct cause of sickness. He thinks a health officer should not waste his time arguing with owners of pig-sties or compelling landlords to empty their cess-pools.

This work belongs to the police while the health officer can explain to working girls how to escape infection from tuberculous brothers, or to physicians the danger from typhoid carriers.

He thinks furthermore, that official disinfection of premises which have been occupied by patients with infectious diseases is mostly a fetish and declare that since it was abandoned in 1905, in Providence, of which he is the health officer, after scarlet fever and diphtheria, that there has been no more than an average number of cases of these diseases. He believes in rigid personal asepsis but not in fumigation of furniture and *fomites,* except as a waste of time and money. He declares that there is no danger in living with a consumptive who is careful, but that no amount of fumigation after the decease of a careless consumptive can give any security to the family since the danger has been buried with the patient.

In the Providence City Hospital the nurses take care of cases of diphtheria and scarlet fever at the same time, and go out in public or to their homes, at will, when off duty, the important point being absolute personal cleanliness. The stress in this new doctrine is laid on animate germ carriers, the effort being to fight the living germs, not the dead or dying ones.

This is a radical doctrine which we imagine most physicians are not yet prepared to accept.

There may be no value in disinfection, though we doubt it if it is properly done, but the public believes that it confers both benefit and safety and it will take some time to dispossess it of that belief even if it were desirable. There are still a few who insist that there is no necessity for vaccination for the prevention of smallpox.

We will take our chances, for the present, with those who prefer disinfection.

Personal cleanliness is all right but there is at least no harm in going a step further.

[1] *Medical Review,* February, 1913.

Recent Problems in Disinfection.[1]—An editorial sounds a warning that though sunshine and fresh air are nature's germicides we forget them so often that it is not best to ignore disinfection. Though it is possible that there may be much fumigating that is unnecessary a gaseous disinfectant will penetrate where a spray cannot reach while for floor spaces liquid solutions are best.

A spray upon a porous surface is evaporated too quickly to enable the germicides which it contains to destroy the organisms to which it is applied. It is believed that clinical experience will show that though fomites are not so dangerous as was once supposed neglect to disinfect them is followed by an increased number of occurrences of infectious disease. Many physicians fumigate their patients' houses themselves, or superintend the job in preference to leaving it to the health officers.

Such physicians are very apt to get satisfactory results from this procedure, and they know exactly what has been done.

Walker's method of routine spraying of school rooms in addition to their fumigation is commended if sufficient quantities of the proper solutions are used. Simple and inexpensive solutions may be just as efficient as those which are made from more expensive materials. The point, after all, in the matter of disinfection after infectious disease is the personal supervision. A doctor who is interested in the welfare of his families is naturally more interested in the thoroughness of the fumigation or other method which may

[1] *Medical Council,* May, 1913.

be employed than the average employee who is detailed for the purpose by the health department.

Social Diseases and Public Enlightenment.[1]—I. W. Voorhees speaks of the tendency during the past decade to study social problems heretofore regarded as strictly medical, witness the societies for sanitary and moral prophylaxis in which laymen may become members and which disseminate knowledge concerning venereal disease, with especial reference to its prevention.

There is much that is wholesome in the study of the problems which sociology is thrusting upon the public attention but there are still obstacles which prevent the acquisition of knowledge concerning sexual diseases. There is still too much prudery, and ignorance, and false modesty. It should not be a disgrace to *be* ill of a sexual disease, but a crying disgrace to *become* ill of such a disease, for the so-called shameful diseases are certainly preventable if one who is ill would protect those who are not ill.

Most laymen know little of the cause of transference of these diseases though it should be known by everybody who is over 16 years of age. The only way by which the public can be approached successfully upon any question is through paper and ink, but the difficulty is that the press will not speak of sexual diseases except by indirection. In the modern drama there is a hopeful medium of bringing this important knowledge to the attention of the public. Shaw, Ibsen and Materlinck have all tried their hand at it and without very conspicuous success.

The latest attempt has recently been made by Brieux in a three act drama which has received in English, the title of "Damaged Goods." The salient facts are briefly these: a lawyer consults a doctor, tells him he has syphilis, and that he is about to be married. The doctor forbids it, declaring that such an act would be criminal. His advice is disregarded and the next year a syphilitic baby daughter is born. An attempt is made to bribe a wet-nurse to suckle the infant but she takes the alarm and thus saves her health.

A divorce is now sought but the doctor refuses to reveal professional secrets and upbraids the father-in-law, who has interviewed him, for not ascertaining the physical condition of his prospective son-in-law before permitting him to marry his daughter. He also informs the father-in-law that he himself has escaped the same disease not through virtue but through luck, and that only by widespread public knowledge of the way syphilis and kindred diseases are contracted and of the proper means of preventing them can future generations be protected. It is thought that this play is defective from a literary standpoint but that it points a moral and teaches what the public ought to know.

The duty of the physician, above all things and before all men in this social battle is to perform the office of teacher.

Heredity with Especial Reference to the Law of Gregor Johann Mendel, O. S. A.[1]— J. M. Connolly thinks that further data will permit us to establish the following rules:

1. Both parents being neuropathic all the children will be neuropathic.

2. One parent being normal but having the neuropathic taint from one parent, and the other parent being neuropathic half the children will be neuropathic and half will be normal, but will be capable of transmitting the neuropathic make-up to their offspring.

3. One parent being normal and of pure normal ancestry, and the other parent neuropathic all the children will be normal but capable of transmitting their neuropathic make-up to their offspring.

4. Both parents being normal but each with the neuropathic taint from one parent one-fourth of the children will be normal and incapable of transmitting neuropathic make-up to their children, one-half will be normal but capable of transmitting the neuropathic make-up and the remaining one-fourth will be neuropathic.

[1] *Medical Review of Reviews*, March, 1913.

[1] *Medical Times*, May, 1913.

5. Both parents being normal, one of pure normal ancestry, and the other with the neuropathic taint from one parent all the children will be normal, half of them will be capable and the other half incapable of transmitting the neuropathic make-up to their offspring.

6. Both parents being normal and of normal ancestry all children will be normal and not capable of transmitting the neuropathic make-up.

The Teaching of Eugenics in Schools.[1]— Leslie thinks that if boys and girls received teaching in eugenics they would be much less likely to grow up with false or perverted ideas on questions relating to sex.

The four following questions are discussed:

1. Should there be preliminary teaching at home?
2. At what age should sex and eugenic teaching be given in the schools?
3. What form should such instruction take?
4. How should such instruction be given?

The following general principles are given for guidance in teaching eugenics:

1. All teaching must be authoritative and be given by qualified instructors of the same sex as the pupils. Amateurish teaching is not only useless but may be dangerous.
2. Teaching should be imparted on a basis of perfect frankness.
3. The subject should be treated as a serious and sacred matter.
4. Nature study of plant and animal life is the best introduction, followed by studies in physiology and personal hygiene.
5. Small classes are best supplemented by incidental and confidential talks with individual pupils.
6. The teaching should have due regard to the age, temperament and home surroundings of the pupil.
7. The personality of the teacher is quite as important as his knowledge of the subject.
8. Intellectual, emotional and social interests outside of school work should be encouraged by fostering a taste for literature, art, music or science.

[1] *Medical Times*, May, 1913.

The Artificial Production of Immunity for the Prevention and Cure of Disease.[1]— F. E. Stewart defines an immune person as one who has recovered from an infectious disease and thereby enjoys protection from subsequent attacks of the same disease for a certain period of time. Some communities are immune from particular infectious diseases as is the case at present with European countries in respect to bubonic plague. The production of immunity artificially is therefore one of the most potent of measures in the prevention and treatment of disease. The first known method of artificially producing immunity was that which was devised by Jenner and consisted in inoculating the patient with the virus of the given disease in an attenuated form, as in smallpox and rabies.

The second method employs dead bacteria in place of the living virus. These bacteria are comparatively harmless when injected but they excite the production of antibodies against the disease of which the living bacteria are the cause. This method which is called bacterin therapy is extensively used in controlling typhoid fever, Asiatic cholera, etc., in armies. The third method consists in the transfer of immunity bodies from an immunized animal to the patient. It forms the basis of serum therapy which is used in the antitoxin treatment of diphtheria, tetanus, etc. There is an important distinction between bacterine or vaccine therapy and serum therapy. A bacterin is a solution which contains the bacteria or their toxins while a serum is blood serum obtained from a horse or other animal which contains the immune bodies produced in the process of active immunization. Almost any of the diseases producing microorganisms could destroy the population of the world were it not for the resisting forces which are always present in the animal organism and

[1] *Medical Times*, April, 1913.

increase under the attacks of the micro-organisms themselves. The stimulation of these resisting forces by scientific methods constitutes the most important advance in medical science.

Public Health Administration the Physician's Domain.[1]—An editorial laments the fact that there are so few trained public health physicians and no course in public health in the medical colleges. The colleges, with three or four exceptions, ignore the subject or give only a few lectures supplementary to the courses in bacteriology and hygiene. It is not strange therefore that sanitary engineers claim positions as health officers, and that non-medical statisticians prepare vital statistics. It is a noteworthy fact that public health work is assuming an aspect which is more and more becoming a medical one from year to year, while the sanitary or engineer department is either becoming subordinate to it or is being taken out of the health department.

For example the health department of New York has nothing to do with the removal of rubbish and garbage with sewage disposal or with street cleaning. Inasmuch as the public has a right to demand that its health officials be specially trained the writer urges that the medical colleges meet this requirement by providing suitable courses for training physicians in public health administration.

There should be post-graduate courses supplementing the usual courses of the medical curriculum, and should include at least a year's training in laboratory methods, public health principles, sanitary science, vital statistics, and practical work in some efficient health department. A special diploma should be given to graduates from such courses.

These are all good and timely suggestions. Here is one department of medical practice which is not yet overcrowded, and it offers a fine opportunity for a career to the young physician who is willing to do hard work.

[1]*New York Medical Journal*, March 15, 1913.

In the field of vital statistics alone there is urgent need for trained men all over the country to place this important subject on a respectable basis. It seems strang indeed that the subject has been so sadly neglected in almost every state in the union, to say nothing of those states in which it has been absolutely ignored.

ETIOLOGY AND DIAGNOSIS.

The Diagnosis of Gall Stones.[1]—According to Moynihan the "inaugural symptoms" of gall stones are as follows: A sensation of a fullness, weight, and distension or oppression in the epigastrum comes on within half or three-quarters of an hour after meals. It is relieved by belching, and dismissed almost on the instant by vomiting. It is elicited with remarkable constancy by certain articles of diet, especially those of a "greasy" nature, and is dependant rather upon the quality than upon the quantity of the food. There is a sensation of great tightness, which if unrelieved may become acute pain, from which the patient obtains acute pain, from which the patient obtains ease by bending the body forwards, by flexing the right thigh on the abdomen, or by loosening all garments which fit tightly to the waist. There is frequently great complaint of "acidlay" or heartburn, and in the act of belching there may be sour or acid regurgitation. While the discomfort lasts the patient may notice a "catch" in his breath, and may find it impossible to breathe deeply without feeling an acute stabbing pain at the right costal margin. There may be a feeling of faintness and nausea, and, rarely, vomiting may occur spontaneously. After a more than usually severe attack of "indigestion" the body and side may feel stiff for several days. A frequent and characteristic early symptom is the occurrence during an attack of indigestion of a slight sensation of chilliness, especially in the evenings after a meal. The patient may shiver for several minutes, and may hasten from the table to huddle over a fire. The sensation of "goose flesh" is often experienced, and several medical men upon whom I have operated have said that in the severer phase it was not unlike a slight rigor, the chilly stage being quickly followed by hot stage and sweating.

These symptoms may be present for months or even for years before a sudden attack of acute pain occurs, as the result of a disarrangement of the stones, or of an attempt of one stone to escape from the gall-bladder. The cause of attacks of pain in gall stones is primarily mechanical; inflammatory attacks

[1]By Sir Berkeley Moynihan, *Brit. Med. Jour.* Jan. 4, 1913.

due to infection, are the results of the movements and impactions of the calculi. Among the commonest of all causes of "biliary colic" is impaction of a stone in the "pelvis" of the gall-bladder, near or actually at the orifice of the cystic duct. The patency of the cystic duct is all-important. As Keith has said, the valves of Heister, made by an infolding of the mucosa in spiral form, are designed to keep the duct open. The gall-bladder acts not as a reservoir of bile—it is too small for that, holding only the amount of bile which can be excreted in 2 hours—but as a controller or regulator of the steady supply delivered on demand into the duodenum. Therefore the cystic duct must be kept open to the free flow of bile in and out of the gall-bladder. So soon as this is arrested, so soon does pain begin. The symptoms caused by impaction of a stone in the cystic duct are characteristic. There is probably a sense of gastric uneasiness, with flatulence, belching, and a sense of distension, as often occurs in cholelithic patients after meals. Suddenly, however, often like a stab, the patient is seized with acute pain across the epigastrium, often more on one side than the other, and nearly always through to the back, near the tip of the right shoulder. The agony may be terrific. The patient is very restless, and in this differs from the rigid and motionless sufferer from gastric or duodenal perforation. He moans and moves without pause, pressing the body with one hand or both, or bending over a chair or clutching a hot bottle to the abdomen. He sweats and yet feels cold and clammy. He breathes with difficulty, owing to a spasm of the diaphragm, which, like the other abdominal muscles, is tightly contracted to form a muscular splint to keep at rest a lesion in need of protection. Nausea, and nearly always vomiting, occur. The vomiting may give relief, probably by the muscular relaxation which it induces. Often the pain disappears suddenly. The instant beginning and the instant cessation are characteristic of cystic duct obstruction—they never occur in any other form of gall-stone obstruction with anything like the same precision. The pain is almost always referred to the back and Boas's sign can often be elicited in and after a seizure. If an attack last for some hours, the distended, tense, and tender gall-bladder may be felt. It is often exquisitely sensitive, and may remain so for many days. The importance of tenderness along the lower border of the liver in cholelithiasis was first indicated by Naunyn, who wrote that in patients who have recently suffered from an attack of colic "pain is induced when, during a deep inspiration, pressure is made with the hand as far upwards as possible beneath the right costal border. At the moment when the liver impinges upon the tips of the fingers the patient experiences a deep-seated pain."

J. B. Murphy has emphasized the same truth: "The most characteristic and constant sign of gall-bladder hypersensitiveness is the inability of the patient to take a full inspiration when the physician's fingers are hooked up deep beneath the right costal arch below the hepatic margin. The diaphragm forces the liver down until the sensitive gall-bladder suddenly reaches the examining fingers, when the inspiration suddenly ceases, as though it had been shut off. I have never found this sign absent in a case of calculus or in infectious cases of gall-bladder or duct."

Jordan Lloyd, many years ago, called attention to the importance, as a diagnostic sign in cases of renal calculus, of a "jab" suddenly made with the thumb in the ilio-costal space. If a stone lies in the kidney this sudden assault causes a sharp stab of pain. Similiarly he has found that a "jab" beneath the costal arch opposite the ninth cartilage, or the striking of the abdominal wall below the ribs with the inner border of the hand, causes a sharp stab of pain when stones lie within the gall-bladder. My own experience does not lead me to attach much importance to these signs unless there has been a recent attack of colic. I have repeatedly failed to find any signs, though a day or two later many stones were found in the gall-bladder. When present these signs are valuable, but their absence signifies nothing.

These symptoms are all doubtless due to the impaction and release of a stone at a point so close to the entrance to the cystic duct as to cause obstruction to the free ebb and flow of bile. If a stone should not fall back into the bladder then it may be tightly and permanently wedged, or it may at last work loose. If it is firmly and immovably fixed in the duct, one or two conditions may develop:

(*a*) The gall-bladder may become distended with clear fluid ("hydrops"). It may be so large that ovarian or parovarian cyst may be diagnosed. The largest gall-bladders recorded contained over 5 gallons of fluid. Even so alert a surgeon as Lawson Tait operated upon a "parovarian" cyst to find that its pedicle was the cystic duct containing a small calculus.

(*b*) The gall-bladder, probably after trivial and temporary distension, begins to contract, and eventually closely embraces the single large stone, or the many stones that lie within it, until all trace of a cavity disappears. The cystic duct remains permanently closed, and the patient has been submitted to what Rutherford Morison calls "Nature's cure" by the rude performance of intraperitoneal cholecystectomy. The "cure" is not always permanent. Infections arise, new symptoms develop, and an operation has to be performed.

Whatever the function of the gall-bladder may be, its loss results in considerable distension of the common and hepatic ducts. If the stone which for a time has been closely gripped by the walls of the cystic duct at last works loose, it may lie in a fusiform dilatation of the canal, in a cavity communicating by a small opening on the one side with the gall-bladder, and on the other with the common duct. In such cases typical symptoms—many slight attacks of colic within a short time—may be present. Two or three attacks may

appear in one week—attacks beginning quickly, and ending quickly, and of no great severity. The pain is felt in all the upper abdomen, and passes round to the back. There is no chilliness, no jaundice, and no loss of flesh. The frequent repetition of mild attacks of colic indicates that a stone is loosely impacted, either in the cystic or in the common duct. If in the cystic duct, the symptoms are those indicated above. If in the common duct, the attacks are milder, the pain is restricted to the epigastrium, it occurs more frequently, and is attended by chilliness and possibly a slight rigor; wasting is almost invariable. Jaundice is commonly absent in both forms. This form of arrest in the progress of a stone is far more frequent in the common than in the cystic duct, so that when many slight attacks of colic occur within a short time, probably a small stone is loosely impacted in the common bile duct. The absence of jaundice is of no diagnostic importance, for in 25 per cent. of the patients from whose common ducts stones are removed there is no history of jaundice.

The Diagnosis of Some Common Symptoms in Childhood.—Diagnosis in children rests largely on the result of clinical examination. The general appearance and expression of children who are ill are points which should be studied well. A child's face is frequently a clear index of the severity of the illness, or indeed of the actual complaint from which it is suffering. Small children will often resent examination and the opportunity should be taken of carefully but not too openly noting the general appearance whilst questioning the patient. As examples of points to be gained from a casual inspection I may mention lung disease, the flushed face and working alae nasi of a case of pneumonia, the anxious expression and rather labored breathing of a case of broncho-pneumonia, the sallow complexion and difficult respiration associated with an empyema. The severity of a case of enteritis can be judged by the sunken appearance of the eyes and the fontanelle and the pinched inelastic state of the skin. A peculiar meditative look is seen on the face of the child with tuberculous menginitis and a dull, heavy appearance in typhoid fever or pyelitis. Extreme pallor will suggest a severe infection, diphtheria, rheumatism or one of the anemias of infancy. The pinched, anxious look of the face with perhaps a slight tendency to cyanosis will suggest the severity of an abdominal condition such as peritonitis. The red, crusted eyelids, running nose and blotchy appearance of morbilli, and the puffy eyelids, with perhaps subconjunctival hemorrhages and bloated face of the child with severe pertussis are often met with. The cry of the infant may also assist in coming to a diagnosis, the improperly fed baby has what can only be termed a "hungry cry." Screaming, on the other hand, may be occasioned by colic, brain disease or otitis media. Crying out and handling the limbs apart from local injury or disease may be associated with a general disturbance of nutrition as in rickets or scurvy. The character of the cry is then suggestive, the hoarse voice of laryngitis, the weak wail of the feeble infant, and the gradual loss of voice in diphtheritic laryngitis.

The cough should also be noted, the paroxysmal cough of pertussis, the hoarse barking cry in laryngitis, frequently met with at the onset of morbilli, the short, persistent, often painful cough of pleurisy and pneumonia, and the inability to cough when the lungs are being choked with secretion as in severe bronchitis. All these points may be made out before proceeding to examine the child, and needless to say the most unpleasant part, looking at the throat is left to the last. It is usually advisable whilst examining the chest to let a small child sit on its mother's lap, and it is often best to listen to the back first, so as not to alarm the child by the sight of the stethoscope, and to accustom it to the feel of the chest piece. It is to be remembered that the apex of the heart in children under four years of age is normally situated in the fourth space and often somewhat outside the nipple line. It has reached the adult position by twelve-fourteen years of age. The pulmonary second sound, as opposed to the case in adult life, is normally rather louder than the aortic. Second examination of the lungs in children is extremely deceptive as regards the physical signs obtained. The breath sounds in small children are usually very distinct and normally rather harsh or "puerile." In comparing the sounds heard on the two sides of the chest, most reliance is to be placed on the "pitch" of the breath sounds, rather than on the doubtful query of prolonged expiration or bronchial breathing which is unaccompanied by any marked impairment of the percussion note. Bronchial breathing may be heard at the apices in quite normal children who are breathing deeply with their mouths open. The abdomen is normally prominent in infants owing to the size of the liver which extends half an inch below the costal margin in the right mammary line, the spleen, however, should not extend beyond the costal margin.

Babinski's sign giving a normal flexor response in the adult, is extensor in children under three; by that age in a healthy infant it should have become flexor. If, however, in premature or ill developed infants who are late in walking, a flexor response is obtained. Thomson states that it is of good omen, because it indicates that cerebral spastic diplegia is not in process of development and therefore justifies the prediction that such children will ultimately be able to walk.

C. V. Kebbell, M. R. C. C., L. R. C. P., *Practitioner*, February, 1913.

Diagnosis of Tuberculosis in Young Children.[1]—Dr. Eric Pritchard says, in part, that the absence of constitutional and focalizing symptoms makes the diagnosis of tuberculosis difficult. Thus infants may be literally riddled with tubercules and older children have extreme involvement of the mediastinal or peritoneal glands without the exhibition of any serious impairment of health or constitutional symptoms. Wasting is by no means an essential factor until the disease is very far advanced, although infants, as a rule, come to a standstill and fail to put on weight no matter how careful their dietary is arranged. The temperature charts show irregularities, but seldom those great fluctuations, characteristic of the tuberculous process in adults. In all suspected cases, the temperature should be recorded for as long a period as possible and at varying times of the day. Sweating is a common symptom but it is of so many childish complaints, therefore little reliance can be placed on such evidence. Speaking generally the older the child the greater the significance of sweating as a diagnostic point in favor of tuberculosis. A child twelve years of age who regularly suffers from profuse perspiration at night, with beads of cold sweat showing on the face and forehead is probably actually tuberculous, or at least a candidate for tuberculosis. General lassitude, poor appetite in the morning, and buoyancy of spirits alternating with periods of depression are all in favor of tuberculosis. The one infallible proof of tuberculosis is the discovery of the bacillus in the sputum, in the emunctories, in the discharge from wounds, or in the cerebro-spinal fluid of the different tests for diagnosis.

Pritchard says that during the first two years of life, when tuberculosis is rare and its consequences more serious, the tuberculin test, von Pirquet for instance, is most useful. Inasmuch as the constitutional symptoms of tuberculosis in children are by no means pathognomonic and inasmuch as the specific tests are not always available, it is to the lymphatic system that we must appeal for the clinical data on which to base a reliable diagnosis, for, as has already been pointed out, it is the lymphatic system which first bears the brunt of the attack and it is while confined to the lymphatic system that the disease offers the best opportunities. However, the constitutional symptoms of an early tuberculosis in childhood are neither pathognomonic nor severe, and from what has been already said with respect to the signs and symptoms of involvement of the lymphatic system, it will be readily understood that the diagnosis is extremely difficult in the majority of cases. With respect then to the diagnosis of tuberculous disease in children it may be stated generally that it must depend on a full consideration of the constitutional symptoms, of the evidence afforded by the specific tests and of the results of a careful examination of the lymphatic system. Although in early life, the gross diagnosis of a tuberculous affection is all important, in later childhood the mere diagnosis of the presence of tubercle is less important than a reliable estimation of the extent to which the tuberculous process is under the control of the natural resources for defence and the extent to which it is likely to gain a hold on the subject.

[1]*Practitioner*, Jan., 1913.

TREATMENT.

The Treatment of Miscarriages.[1]—According to Andrews the treatment of miscarriages can be summed up briefly thus—that they should be treated like labour on a small scale, that is, leaving them alone in the majority of cases, interfering only when necessary.

Threatened Miscarriage.—If the bleeding is only slight, an attempt should be made to avert the miscarriage—the treatment being that which is used in slight cases of accidental hemorrhage. The patient is kept in bed, and is given sedatives. When first seen, an injection of morphia is given and then a mixture containing bromides, tincture of hyoscyamus, and, if necessary, tincture of opium. The objection to giving much opium is that there may be some difficulty in getting the bowels open without giving drugs whose action is too powerful to be safe in this condition. Mild laxatives only should be used, and enemata should be forbidden. Plugging and douching must, of course, never be used. Either of these methods of treatment might stop the bleeding, but only by making the uterus contract and empty itself. Ergot is recommended by many authorities, to be given in small doses, with the idea of steadying the uterus. Personally, I only give it when I want the uterus to contract and retract forcibly.

Inevitable Miscarriage.—If active treatment is necessary in these cases on account of the severity of the bleeding, a hot douche, temperature 118, may be all that is necessary, together with the administration of ergot. If this is not sufficient, the treatment adopted will depend on the stage that has been reached. If the internal os is well dilated, and the ovum is already partly expelled, it may be best to give an anesthetic and clear out the uterus with the gloved finger. In many cases, however, if there is no suspicion of sepsis, excellent results are obtained by packing the vagina. The bladder must be emptied before this is done, then a Sims' speculum is inserted, and the vagina is tightly packed from above downwards with gauze, cotton wool or some other sterile material. It is essential that the perineum should be retracted or it will be impossible to pack the vagina satisfactorily. No good result is obtained simply by the inserton of a small quantity of gauze or wool into the

[1]Henry R. Andrews, M. D., B. S., *Med. Press and Circular*, April 9, 1913.

vagina; it must be firmly packed. When the plug is removed a few hours later, it will usually be found that the uterus has emptied itself. If it has not done so completely, there is usually sufficient dilatation for digital emptying to be possible without difficulty. One of the most important things for the doctor to do, if he cannot stay with the patient who is miscarrying, is to impress upon the nurse the necessity for saving for his inspection everything that is passed. The placenta at twelve or thirteen weeks is a much larger structure than is expected by most nurses, and a good many medical men. It is nearly as large as the palm of one's hand, and is perfectly formed. It is much more likely to be torn, part of it remaining behind, than at full time, since the changes in structure which facilitate the separation of the "ripe" placenta have not taken place. The decidua at this early stage of pregnancy is a thick, tough structure, very different in consistency from what it is at full time, and the complete expulsion of the decidua is the thing to be aimed at. If, after examination of what has been passed, the doctor has a suspicion that part of the placenta or a large part of the decidua has remained behind, it is best to clear up this suspicion at once, and not to wait until the suspicion becomes a certainty in a few days' time. The os being well dilated, there is no difficulty in inserting a gloved forefinger into the interior of the uterus after the vulva and vagina have been thoroughly cleansed. In cases, however, where there is a strong suspicion that the patient is suffering from gonorrhea, insertion of a finger into the interior of the uterus is a risky proceeding, likely to result in extension of the infection into the uterus and tubes, and there will be more justification for an expectant policy.

Incomplete Miscarriage.—It cannot be too strongly emphasized that bleeding after a miscarriage is no more normal or physiological than it is after labour. There must be some cause for it, and if this cause is not carcinoma of the cervix it is practically certain that the uterus is not empty. I have seen two or three cases of fatal bleeding due to incomplete miscarriage where the patient's life might have been saved by a simple operation, which should never be postponed until the patient has lost a dangerous amount of blood. Only one assistant is necessary, to give the anesthetic. The patient is held in the lithotomy position by Clover's crutch. After the vulva and vagina have been cleansed, a gloved forefinger is put into the uterus, and any tissue that is found there is removed with ovum forceps. Many people trust in a curetting to empty the uterus, but curetting is much inferior to digital exploration followed by the use of ovum forceps. Some doctors seem to look on the curette as a sort of magnet which must attract to it any piece of placenta which is retained, but in many cases a portion of placenta is left behind even after a curetting. I have seen three cases in which curetting failed to disturb a normal pregnancy. After the ovum forceps have removed what was felt by the finger, the finger is again inserted, and if nothing more can be found in the interior of the uterus, the uterine cavity is swabbed out with some sterile gauze or cotton wool, and then swabbed with tincture of iodine. If there is any bleeding after the final hot douche has been given, a piece of gauze should be left in the uterine cavity, projecting into the vagina. This together with a dose of ergot, will prevent any further hemorrhage.

Carneous Mole, or "Missed Abortion."—These cases can be left to nature unless bleeding occurs. As a rule there is such complete thrombosis that there is no free bleeding, only a small amount of dark brown discharge. If it is necessary for any reason to remove the mole under an anesthetic, it is a wise precaution to insert a tent through the cervical canal the night before. Otherwise, it may be found that the cervix is difficult to dilate and easy to tear. As a rule, if it is necessary to assist nature in these cases, a hot douche followed by plugging and ergot is the best treatment.

Superheated Air in Diphtheria.[1]—According to notes that the recent extraordinary perfection reached in the manufacture of electric apparatus, particularly in instruments for the transformation of the current into heat, seems to promise far reaching therapeutic results undreamed of a few years ago. It cites for example, an article by Robert Rendu, which appeared in *Lyon Medical* for January 12th last, in which the author described his experiments with air superheated by electricity in the destruction of the diphtheritic membrane, experiments which were followed immediately by the most encouraging symptoms. Rendu used an electric ventilator which drove the air into a sleeve where it met with resistance sufficient to heat the metal to redness; the sleeve is adjusted to a flexible metal tube closed with cork, a non-conductor, which permits the heated air to be easily brought into contact with the membrane. In ten minutes a temperature of over 302° F. is reached. By interrupting the current the apparatus is rapidly cooled; it is then reheated and recooled several times.

Rendu's results with this method present a singular parallelism with those obtained by use of antitoxin. In each of two series of 33 infants treated, he had a mortality of 15 per cent., and in each post-diphtheritic paralysis in 9 per cent. After either treatment there was a rapid fall in temperature and quick disappearance of the membrane. Until a simpler apparatus can be devised, however, for the application of the hot air, and as long as reliable antitoxin is as easily obtainable as at present, the latter is not likely to be ousted from its primacy in the therapeutic methods available in diphtheria.

---

[1] *Bulletin général de thérapeutique, Gazette des practiciens* for May 1, 1913.

559

American Medicine

H. EDWIN LEWIS, M. D., *Managing Editor.*
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.
Copyrighted by the American Medical Publishing Co., 1913.

Complete Series, Vol. XIX, No. 9.
New Series, Vol. VIII, No. 9.

SEPTEMBER, 1913. $1.00 YEARLY in advance.

Compulsory but secret notification of tuberculosis has been recommended by the French Academy of Medicine with a view of furnishing public aid to those in need of it. Notification has hitherto been enforced in many countries with the sole view of establishing some sort of quarantine, but it has only succeeded in creating a false public opinion that the consumptive is a dangerous pariah to be shunned by his family and isolated somewhere for the public good. Physicians have been naturally reluctant to place a patient in such a dreadful position and in France where it is a serious penal offense to divulge professional confidences, there has always been strenuous opposition to reporting these cases. The new plan is to give the information confidentially to a special medical official to confirm the diagnosis and then certify the case for public assistance. Perhaps the new revelations of the universality of tuberculosis in childhood and its possible existence throughout adult life may convince the public in time that the consumptive is not nearly so dangerous as he was once thought to be, and that if we develop tuberculosis it is invariably due to a temporary loss of resistance to our own lesions and not a new infection as commonly believed even by the great majority of physicians. The myriads of bacilli we must swallow or inhale every dusty day do not seem to do any harm whatever, as we are immune through a constant vaccination by our own lesions. The only ones surely harmed by freshly excreted virulent bacilli are infants and children who have not yet acquired immunity and they are the ones who must be guarded from excessive doses of what they are sure to acquire harmlessly in time. The present popular idea is almost the reverse of this and considers the consumptive a great danger to adults but comparatively harmless to children. When the facts are fully known and appreciated a patient may not object so seriously to having a report made that his tuberculous foci have taken on temporary activity. Until then our health authorities might devise a way of getting in touch with every case by assurances that the information is confidential and will never be used to impose irksome sanitary restrictions.

Are the tuberculous entitled to public aid? The French Academy seems to think so, if we can trust the accuracy of recent reports. We have long known that the vast majority of human beings with active spreading lesions have not the means to obtain the food, rest and cold air needed for recovery. They are doomed unless some one steps in to support them and their families. It is quite natural then to conclude that as we cannot expect such aid from individuals, the assistance must be

given collectively—by society through its governing machinery. This sounds good but where is this enormous amount of money to come from? If but one person in four hundred needs help—and that is a low estimate of the number having active tuberculosis—New York City must be prepared to care for 10,000 patients and their families at an annual cost of at least ten million dollars, not to mention the cost of institutions. It is evident that such an increase in taxation would paralyze industry, and we must sorrowfully condemn the French idea as impracticable. Then again where is the necessary food to come from? The market does not contain the extra amounts of milk, eggs and meats needed for the sufferers. Chronic shortage of food in the world with consequent underfeeding of 5 or 10 per cent. of its inhabitants, is one of the causes of tuberculosis and the main reason why recovery is impossible for so many. Sad as it seems, public aid is not a "right" of a consumptive nor is he entitled to cure if a better man can overbid him for the articles needed to prevent or cure the disease in his own case. The struggle for existence is a brutal fact and no amount of sympathy for the unfit can end it. We must attack the problem of prevention, and as there has been a progressive improvement for nearly a century we should find out the reasons and continue the good work. Yet we might as well make up our minds that there is an irreducible minimum due to the fact that some of the things which make consumptives among the poor are irremovable consequences of the struggle for existence in competition for necessities against better men. Poverty is the real cause of most tuberculosis and no one knows how to end poverty.

Prenatal nutrition seems to be given more attention by students of comparative physiology and nutrition than by the medical profession. No doubt we all know in a general sort of way that the pregnant woman must be well fed or her offspring may suffer, but from the frequency with which a thin, underfed woman will give birth to a fat healthy infant we have gained a general impression that the fetus is a parasite which steals all the nourishment it needs through the placenta irrespective of the state of the parent's tissues. Some lower animals apparently become big and fat for the purpose of furnishing material to be converted into the numerous ova later, but in other species the ova depend upon a constant supply of food. Experiments on pigs by John M. Evvard of the Iowa Agricultural Station (*Proceedings Amer. Breeders' Ass'n, Vol. 8, 1912*) show that the kind of food the mother eats during pregnancy exercises an appreciable influence on the number and size of the offspring, and perhaps the food taken before pregnancy may have some effect also in the way of preparing pabulum. The details do not concern us here, and the experiments are not sufficiently numerous to warrant exact conclusions as to the best articles for the practical purposes of the farmer, but the fact of human interest is the effect of quality of food when the animals have taken all they desired of what was supplied. We usually say that during pregnancy an ordinary diet is needed although there are extraordinary demands which must be satisfied. For instance, there is a greater need for calcium than the mother's own tissues will require, and the experiments show that the fetus may not be able to impoverish the mother's tissues to get calcium but that it simply fails to grow properly. The problem then for

our dietitians is to determine what foods will supply the needed materials for this huge growing mass without harming the parent tissues. We may accept as fairly well established that the fetus cannot grow properly unless the needed nutriment is freely supplied to it, and that it cannot take out of the placental blood any substances which are not there. Above all else it cannot steal all it needs from the placental tissues, if the blood does not supply it. We are evidently in the field of very practical hygiene.

The longings of pregnancy may have a meaning and it might be well to study them instead of dismissing them as meaningless psychoses. Evvard says that his pigs were evidently hungry at times though supplied with abundance of the few articles of the diet and would whine and squeal for food while leaving some of their ration. It would not be a bad guess in case of "longings" to consider them as a species of hunger due to a blood condition impoverished of certain substances by the fetus. It is an indefinite sensation, but so is ordinary hunger, and the article longed for may not furnish the things whose absence causes the feeling. The specific desire can not be taken as a guide to practical dietetics. The only point for us is to find out whether the food is of proper quality and variety, and we may discover that such women are in fact partially starved and impoverished. At any rate, the dietetics of pregnancy might be put on a more scientific basis if we would study the cases more in detail. It is another instance where progress waits on the data to be observed, collected and recorded by family practitioners. Perhaps many a baby could be given a better start in life, by a scientific feeding of the mother, and as the government is spending a lot of money to give unborn pigs a good start, why not give some for the welfare of babies before birth? They're worth it.

The nature of colon bacilluria is discussed by Dr. Ethel M. V. Williams in *The Lancet* of August 24, 1912, with the conclusion that its sole cause is any kind of chronic disorder of the intestine, usually of long standing. Colon bacilli were found in the urines of sixteen patients among seventy selected at random for the investigation, and all of the 16 were among the 44 who had intestinal troubles, while the 26 patients free of intestinal complications did not present a single instance of the phenomenon. Most of the 16 complained of frequency of micturition or pain on passing urine, which in several cases dated from a catheterization. In all but one cured case the bacilli disappeared shortly after the intestines became normal, and in four cases requiring prolonged treatment the bacilli continued as long as the bowels were abnormal. In the one case, there was but one examination made a few days after the cure of a very obstinate constipation, and it is likely that the bacilli did disappear later. In three cases in which the intestinal disease persisted in spite of treatment, the bacilli also persisted in the urine. No cured case received any vaccine or any treatment for the bladder. The urine was always acid and in several was turbid with a "peculiar stale fishy smell." The conclusion was formed that the condition was a late stage of any chronic disorder of the intestine, that the bacilli had actually passed through the intestinal walls to reach the urinary tract, and that there had not been a primary infection of the bladder. Never-

theless, catheterization may have injured the mucous membrane already irritated by the bacilli which were not able before to cause a cystitis. All the cases were women but perhaps men may suffer equally.

All this is exceedingly interesting and will perhaps throw considerable light on those other diseases in which colon bacilli unaccountably appear in places where they ought not to be. Old men in particular have seemed to be victims of colon bacilli which have migrated and taken on great pathogenic activity. Perhaps in all these cases a long standing bowel trouble—or even cancer—has been overlooked. Often indeed the colon bacillus is the terminal infection determining death, as though the organisms which we harbor throughout life for some kind of reciprocal benefit were always ready to give the *"coup de grace"* when we become unable to support them properly. It does seem that those physicians who have been so earnestly teaching us to look after the bowels of our patients have been right. What appeared to be exaggerations as to the harmful role of the colon itself may have been understatements of what that organ may do when it is not normal. Metschnikoff has been like a lone prophet crying out warnings to an incredulous people who have misunderstood and misquoted him. A culture tube many feet in length can produce an enormous amount of poisons and the subject of intestinal toxemia has long occupied an important position in etiology, but it seems that we do not make enough practical use of that knowledge. Perhaps this new discovery of the migration of the colon bacilli in nearly half of all cases of intestinal disease, will awaken us to a fuller realization of the possible fatalities of what are now considered minor affections.

Von Behring's new method of producing immunity to diphtheria may be a step in the right direction but on the face of it, there is no justification for the enthusiasm which has been aroused. It is well known that antitoxin derived from the horse, disappears quickly after the serum is injected and with it our immunity fades. Von Behring's plan is to inject the toxin to produce an autogenous antitoxin lasting longer. To prevent poisoning the toxin injected is neutralized by mixing it with antitoxin, the former being in slight excess. One would presume that such a neutralized toxin would have no effect of any kind, but experiments show that though it has lost its power to poison, it is still able to compel the tissues to manufacture antitoxin. The person thus treated is able to resist the poisons of an infection much better and for a longer time than one given the antitoxin alone, but he has no greater power to kill off the invading bacilli and it has been suggested that he is also as likely to become a carrier. What we need is a method of harmlessly increasing the autogenous bactericidal substances, the bacteriolysins, stimulins and opsonins. Then we will be able to cause a real immunity among those who are unavoidably exposed to diphtheria and we will be able also to cure the carriers in the way nature does it. Still it is a big step to be able to cause autogenous antitoxin to appear and we hope that Von Behring's announcement is well founded and will prove practicable. So far, the only known way of curing a carrier is by Schiötz's method of painting living staphylococci on the infected mucous surfaces.

The factors of efficiency concern both the employer and sanitarian, for it can be

accepted as axiomatic that the best and most work is done by those who are in the best health and condition. We have frequently referred to the serious effects of fatigue not only in lessening efficiency but in causing accidents through diminution of alertness. We had hopes that medical men would take up the study as they do any other public health problem, but it looks as though this branch of sanitation is to be handled by laymen. We are informed that Miss Josephine Goldmark has collected in book form all the evidence as to the effects of fatigue. Of course physiologists have worked out the muscular fatigue curve so well that there is little more to be desired in that line, and the statistics collected in Germany, France and Italy have all shown that accidents increase with fatigue and lessen after the noon rests, to mount again to the highest point in the late afternoon The National Insurance Office of Germany is reported to have collected exceedingly valuable and accurate data of this kind. All this is so old that it is a waste of time to go over the figures or even refer to them. The new investigators are in the line of preventing the minor fatigue errors which do not result in accident but which interfere with efficiency so greatly as to destroy profits. Prof. Pieraccini is said to have studied the work of Florentine type setters and found that the amount of work and number of errors are strictly dependent upon fatigue, errors increasing as work deteriorates. It is quite possible to determine accurately by mathematics exactly when the deterioration of work and increase of errors render it unprofitable to continue labor. Employers may find here and there that long hours are too expensive. We would not be at all surprised to learn that errors of judgment due to slight fatigue are causes of many deaths of aviators, for this is a calling which requires the highest possible tension every instant—a thing few men can do for more than a few minutes at a time. We all take intermittent rests in our work, and are unconscious of it. Even locomotive engineers are liable to do it and never be aware of the fact; that is, to all intents and purposes they may be asleep for a few seconds now and then, and in that few seconds they may pass a danger signal. This is the explanation given of some recent accidents and it seems reasonable. If true, it shows how important these physiological studies have become.

The environmental factors of efficiency are the latest to be put to the mathematical test of figures. Dexter's work on "Weather Influences" was the first to prove that meteorological conditions affect us far more profoundly than we had imagined. We all long knew the nervous effects of great disturbances, but it was a revelation to know that minor changes also had appreciable results. This kind of work is now being carried on by Prof. Ellsworth Huntington of Yale University, whose writings have already attracted great attention from his originality and his power to analyze figures which are meaningless to others. Last but not least, is the investigation of the loss of efficiency due to unsanitary conditions in the work rooms. Winslow of the College of the City of New York, has called the attention of manufacturers (*Factory* of Chicago, July, 1912) to the fact that if the above mentioned investigators find that in a hot sultry August day, the output is less and of poor quality, while it is far better in October, it is business folly to make the work rooms so hot and stuffy as to resemble August dog-days. We fully expect that it will be proved to be a paying

investment in certain lines, to introduce cooling apparatus in such factories, so that the workers are kept in the best conditions for speed and accuracy. Our interest in the matter is the influence on public health. Every factor which is found to reduce efficiency certainly affects health adversely, and we are therefore sure to learn more about hygiene than we ever knew before. Every improvement in factory conditions to increase efficiency, will reflexly enhance health and reduce the number of breakdowns. We therefore urge physicians to take an active interest in these investigations, for they are quite sure to find out why many of their patients get sick, though apparently living wholesome lives. Cure as well as prevention will become more certain. President's Taft's economy commission is said to have found inefficiency due to the unsanitary conditions in which clerks are compelled to work in the executive departments in Washington. We are bound therefore to witness numerous sanitary reforms primarily for economy's sake—the health of the workers being a secondary consideration. This seems to be the way of the world. We therefore urge factory owners to investigate all such matters as room temperature, excess or deficiency of light, ventilation, the food of employees and even their home conditions, for it will increase profits enormously if the workers are made healthier. We particularly urge the economy commission to investigate the effects of long hours for clerks, for if the above mentioned investigators are not deceived, the Government is losing very heavily through the errors committed by tired brains after four o'clock and probably after three in lines requiring keen attention —not to mention the nervous breakdowns resulting from straining jaded nerves to work when rest is imperative.

Cheese as a cause of appendicitis is said to have been suggested by Dr. S. B. Kaufman, resident physician of St. Mary's Hospital in Philadelphia, to account for a sudden outbreak of the disease in St. Francis Industrial School in Eddington, Pennsylvania. Until the cases have been properly reported it is not right to comment on this epidemic of a disease which has never before been considered to be in the epidemic class. We do not know whether all the boys did overindulge in cheese, nor whether cheese has been blamed. Nevertheless it is a timely suggestion to look into the etiological role of diet in this too prevalent disease. We have been inclined to assert that unrecognized appendicitis has always afflicted mankind and perhaps also man's anthropoid ancestors, and that its apparent increase in the last two decades is merely a result of better diagnosis, but every little while something happens to make us suspect that there might be avoidable causes. It certainly does appear most unaccountably in patients who have not made the least change in their habits or mode of life for years and to whom nothing unusual has happened, as far as is known.

It is quite evident that an article of diet such as cheese, which may be a solid mass of saprophytes, could easily furnish a new infection to light up an inflammation in a susceptible appendix. We have changed our diet very remarkably since we have left the farm for industrial work in town, and the 75 or 100 years during which this change has been going on, is far too short to have adjusted us to the new life. Appendicitis might be one of the penalties and a natural way of causing adjustment by eliminating the unfit—i. e., those unable to get prompt surgical relief. There is, of

course, little basis for such a speculation and it is thrown out merely to call attention to the necessity for a better study of the final or determining causes of acute appendicitis, especially the possibility of some article of diet being at fault. Some one may be lucky enough to hit upon facts of considerable preventive value.

Using boys to keep the streets clean was the happy inspiration of Policeman Miller of New York City—all honor to him! He organized some street urchins into a sanitary squad of inspectors who reported to him any instances where peddlers or housewives threw rubbish into the streets. A few prosecutions convinced the culprits that health laws are serious matters, not fads of the finical. East Broadway, which was said to have been the dirtiest street in the world, is now the cleanest. Everyone knows that the easiest way to have clean streets is to prevent the dirt and yet the majority of city residents seems to think that the proper thing to do with small rubbish is to throw it into the streets. Shop keepers have been notorious offenders and do not hesitate to spread their sweepings on the sidewalks for the wind to scatter. We have long preached from the tent that we could not end the present customs of city savages, until we had convinced the best of them that their ways were wrong, and that the best way to reach them was through the children. Every child should be taught in school that cleanliness is next to godliness, and in a little time there would be good fruit. But this millerite idea of giving the boys large bright nickel badges as a sign of authorized inspectorship was nothing short of genius. Boys are essentially good—what goes for badness is generally a result of fun-loving propensities. They are emotional and can easily be won to any good cause, particularly if decorated with a badge and clothed with a wee bit of authority to flatter the self-esteem which so early manifests itself and which should be cultivated still more. Many a temptation to commit crime would be resisted if the boy had more self-respect. So we heartily approve this new movement, because it helps the boys as much as it helps sanitation. Indeed everyone should be an inspector for we are all vitally interested in the future city beautiful. We wish all policemen would do as Miller has done—and then perhaps the commissioners themselves might do something along this line. We must end the practice of throwing garbage, rubbish, papers or dirt of any kind into the streets, and then the problem of cleaning up the unavoidable filth will be easy. Let the fines be big enough to pay for the cleaning.

The Thaw alienists have again attracted attention to the absurdities of expert testimony—much to the disgrace of medicine. This time our Canadian brothers must shoulder the blame. Somehow or other the impression had been widely gained that the British Empire and all its Provinces were not afflicted with the custom of permitting more or less expert men to submit mere opinions whose only effect is to confuse the case at issue. Recent events show that we are all of one flesh yet we cannot refrain from suggesting that bad as we are, we have always tried to introduce facts to qualify a witness so that the court may be convinced that his opinions are worth something. It is amazing that reputable practitioners would express a positive opinion

that a person was perfectly sane when in fact they have had neither time nor opportunity to find out. It would have been permissible for them to have testified that they were unable to detect signs or symptoms of mental disease or abnormality. Such a statement has real value as evidence, though to be sure it is a negative value of no great moment as it merely means that the symptoms might be temporarily latent or that a more expert man could detect them. The incident is exceedingly valuable as an illustration of the chaotic condition of laws and customs relating to the obtaining of expert advice for courts of justice. It is one more proof of the necessity of excluding from the witness stand any persons in the pay of either side. How long are Americans north or south of the line to tolerate the custom of admitting purchased opinions as real testimony? As long as the old system lasts we are quite sure that the people will be balked in their efforts to keep murderers under control. Public opinion has definitely and permanently crystalized into the form of a demand that such criminals must be executed or placed where they cannot repeat the crime and kept there until it is conclusively proved that the offenses will not be repeated. So far, on this side of the line, Thaw's alienists have not succeeded in convincing any court that he is sane. Public safety therefore demands that until he can show full recovery he must be controlled. His own welfare also demands it. The facts seem to have proved that his malady is congenital, progressive and incurable. The Canadian governmental authorities are apparently convinced of this fact and also seem to be as much ashamed of some of their doctors and lawyers as we are of some of our own. We are very glad that Canadians in general have determined that their country shall not be a refuge for our law breakers.

An Expected Attack.—As we go to press our attention is called to a vicious attack made upon us by the editor of the *J. A. M. A.* in the columns of that otherwise worthy and esteemed publication. The vicarious onslaught in the *Old Dominion Medical and Surgical Journal*—to which we courteously replied in our August issue—furnishes him with a text for his outpouring of venom and spleen. As usual the pose of righteous wrath at any one daring to question the conclusions of the Council on Pharmacy and Chemistry is assumed, and as was to have been expected our whole position on the subject of the standardization of disinfectants is attributed to subsidization by our advertising department! In all propriety we might ask the editor of the *J. A. M. A.* to what extent his readiness to attack us for our views on disinfectants in general—and the Rideal-Walker test in particular—is due to the fact that the *J. A. M. A.* carries a full page advertisement of the very advertiser who has been most active in advocating official adoption of another test?

But this would be ridiculous, for we do not believe that the *J. A. M. A.* or any other reputable publication is subject to any such commercial influence whatsoever. There are plenty of advertisers who could bear witness to their inability to influence the editorial department of AMERICAN MEDICINE and whose advertisements do not appear as a consequence in our pages. We know at least twenty other high class medical journals that prize their honor and integrity as highly as we do and maintain the same standards of honest independence.

Conditions, to be sure, were not always as gratifying in this respect as they are today. In fact, ideas relative to the professional endorsement of proprietary products were vastly different a few years ago. The *J. A. M. A.* was no different than the other journals of its class as its pages, text as well as advertising, of ten or fifteen years back will bear ample witness. Many things looked upon as perfectly regular a decade or more ago, for some time have appeared in a totally different light; but with a clearer vision and the evolution of higher standards, they are no longer permissible in the management and control of clean, honorable journals. This moral growth has not been limited to medical journals, moreover, but has been manifested in every department of our social life. Politics, business, education, every phase of life and living have felt the uplift that has come from a deeper, more comprehensive realization of the moral responsibilities of modern society.

Therefore when the editor of the *J. A. M. A.*—or anyone else—intimates that American Medicine is subsidized by any advertiser, or that its editorial utterances on any subject are controlled in any way by commercial influences he states what is an absolute falsehood—or in plain, unvarnished language, *he lies!* The worth of a publication is gone just the minute it gives up its independence, and since it is the earnest belief of those directing the policy of American Medicine that its greatest assets are its honor, integrity and good faith with its readers, we have constantly held to our ideals of clean, unbiased, indepenedent journalism. If there is a man on earth who can show that we have ever directly or indirectly bartered the influence of our reading pages *we challenge him to do so.* Our editorial statements may have been wrong many times, and our judgment open to just criticism, but we doubt very much if there is an intelligent, honest man in the land who believes that American Medicine has ever been subsidized by its advertisers, or any other interest, or has ever printed a word in its editorial or text pages for which it has received a cent of payment directly or indirectly. We would not use space in discussing these matters but for the fact that there are a good many men whose good opinion we desire who have had no opportunity to acquire accurate information concerning the character or professional integrity of either the editor of the *J. A. M. A.* or the editor of American Medicine. In the absence of that information the statements of the editor of the *J. A. M. A.* concerning American Medicine might carry especial weight because of the position he happens to hold at the moment. But let the honest, self-respecting medical man once obtain that information and—well, we are content to let him draw his own conclusions. Thank God, the time has not arrived when an honest, God fearing man, whose professional antecedents and standing will bear the closest scrutiny, whose family and domestic relations have been typical of the clean, wholesome American home, and whose whole life in school or college, in medical practice or the daily routine of business has been an open book, has anything to fear from falsehood, calumny and malice.

An acrimonious controversy—one dominated by discourtesy and ill feeling instead of an earnest effort to arrive at the truth— is always to be regretted. Nothing is ever gained by injecting personalities

and petty antipathies into any discussion of scientific questions. Indeed it degrades every one taking part therein and not only obscures the issues but often makes it impossible to arrive at the truth.

In the present instance the editor of the *J. A. M. A.* completely ignores the problem of the standardization of disinfectants, and seizes a premature, unwarranted and stupid editorial in one of its satellites as the basis for a malicious attack on the motives of AMERICAN MEDICINE. Continuing his vicious diatribe he attributes our views on disinfectants to commercial influences and makes the libellous accusation that AMERICAN MEDICINE gives editorial endorsements to commercial humbugs. No one knows better than the editor of the *J. A. M. A.*, how untrue this is. Those whose good opinion we prize and desire can easily learn how clean and free from anything of a commercial nature we have kept the editorial and text pages of AMERICAN MEDICINE. Since 1908 this journal has been owned, controlled and edited by a group of physicians in active practice who are not only in good standing from every professional standpoint, but whose reputations as men and physicians will compare very, *very* favorably with this gentleman who has assailed them.

At the present time we do not propose to pay any further attention to the attack of the editor of the *J. A. M. A.* He plainly showed his bad faith when he ignored the editorial in our August issue replying to the *Old Dominion*, etc. Any man who can resort to such methods and prostitute the pages of the representative medical publication of America for the sake of venting his personal choler and spite, can safely be left to the judgment of the honorable physicians of the country. If circumstances, however, force us to defend ourselves from further attack, we shall not dodge the issue, nor show a craven spirit in protecting *our* honor and reputation. Nor shall we approach "the firing line" with doubt or fear as to the outcome, for *none knows better than we the quality of our ammunition and the dryness of our powder.*

As for the question of the standardization of disinfectants, the question that really interests us, we are waiting the move of those who were so ready to accuse us of libel and misstatement. Up to the moment of going to press no word has been received—or noted—in reply to our earnest request for any data or evidence disproving the statements in our May issue. Accusations of misstatement, innuendoes and slander are not evidence, and no intelligent, unbiased physician will take them as such. So it would seem incumbent on those who have been so ready to see malice and ill-feeling in our original editorial to come forward and prove the error of the statements to which exception has been taken. With all sincerity we insist that we want truth and right to prevail. If we are wrong in our views or have done anyone or any man's work an injustice, we stand ready to make all possible amends frankly and openly. But we do insist on competent proof. Slurs and slander will not do—especially from those "who dwell in glass houses."

The deadly hatpin is raising masculine ire in many parts of the civilized world, because so many men are having an eye poked out, or claiming to have been injured in other ways. In Switzerland, at least in

Geneva so it is said, a recently enacted law makes it a crime to wear unprotected pins and the guilty lady if caught red-handed, or shall we say red-headed, is liable to a fine or even confinement. The chief of police of Berlin has tried to end the evil by his lone-self—he must be a bachelor or he would not be so foolish. He first put up notices, imploring the ladies to mend their evil ways, and the ladies calmly ignored him—as they generally do in matters of fashion. Now he has become real angry and issued a regulation forbidding the use of unprotected pins. He says that those who violate his new rule will be fined fifteen dollars or locked up. It is news to us that Berlin police are given authority to make laws for we were under the impression that they merely compelled obedience to laws made by somebody else. Perhaps it is a mere police regulation to keep order in the streets and that fact may be the reason for the prediction that the ladies will ignore it as they ignored his former pleadings. We have always approached feminine questions with fear and trembling, as most befitting the angelic role we try to play, and because we flatter ourselves that we are not fools to rush in. Our only excuse for the present departure from our custom, is a desire to lessen the practice of those surgeons who derive some income from patching up male faces plowed up by rapier-like hat pins. The suffering and injury are not much more than many or most fashions inflict as the price of being fashionable, but the wearer has usually been the victim. In this case, the man who pays the bills may lose the eye, and it is not fair play. It may be very well to say that we should have Christian forbearance and turn the other eye to be put out but why not go back to more primitive rules and take an eye for an eye? The hat pin has come in very handy as a weapon for self-defense in emergency, and those who carry deadly weapons should expect the consequences. But there! all this talk is wasted for we now learn that it is becoming fashionable to use smaller pins and guarded ones, too. That settles it.

What Will Become of These Prize Babies?—At a recent prize baby contest in New York, the showing was very fine; one baby won one hundred per cent. of points. several had ninety-nine, and a very large number came within five per cent. of perfection. This is very gratifying and shows that Nature is not easily discouraged by our foolishness; she continues to give us well nigh perfect children to work with, even in the slums, and neglects to furnish us the brains with which to bring them to a strong, normal manhood. What of these beautiful children some fifteen years hence? How many will have succumbed to the infections of childhood, how many will have adenoids, chronic nasal catarrh, curved or crooked spines, some acquired optical defect, impaired hearing, even some venereal disease? Will any of them have just and true notions of physiology and personal hygiene? Will they have all their teeth save the last molars? We do not go further and ask if they will speak English with a decent accent and write it with reasonable terseness and accuracy; we confine ourselves to their physical condition.

It is hard to spoil a baby physically before it is one year old. A much more searching test of parental care would be to offer prizes for the best children between the ages of five and eight years. Any couple can reproduce; few can bring up properly the offspring of a union.

MEN AND THINGS.

A National Narcotic Law is pending at the present time in the Finance Committee of the U. S. Senate. This bill regulates the manufacturing, selling, dealing in, and dispensing or distributing of narcotics. The provisions relating to physicians are extremely simple. The physician must register and pay an annual tax of one dollar, and when purchasing narcotics make out a regular order form in duplicate, retaining a duplicate copy of such order for a period of two years. When the narcotics, so ordered, are received, the date of such receipt must be recorded in respect to each order.

The dispensing or distribution of narcotics to his patient by the physician, dentist or veterinary surgeon registered under this Act, in the course of his professional practice, and while personally attending such patient, is entirely exempted from any restriction whatsoever.

Thus it will be seen that this bill bids fair to accomplish its purpose, namely, the tracing of purchases of narcotics and exposure of illicit traffic, and while placing only a slight burden upon the physician so far as records are concerned, will impose no restriction at all upon him so far as the practice of his profession is concerned.

Narcotic legislation is necessary and desirable, but it is equally essential that such legislation accomplish its purpose with the least interference to the legitimate practice of the physician.

The bill is not perfect, and there are a few objections that might properly be raised against it. But it is certain that some legislation on the subject will be enacted sooner or later, and the present bill is probably as fair to every interest as any legislation at the beginning ever will be. One thing is certain, steps must be taken, and soon, to reduce the illicit traffic in habit-forming drugs. The situation has become intolerable to those who recognize the fearful menace to the American people. Therefore, even though the proposed bill works some hardship on honest medical men, we can afford the inconvenience in view of the possibilities of checking this terrible evil. As the law works out, it is entirely probable, moreover, that justice will be done the medical profession by subsequent amendments. Medical men who realize the need of controlling the sale of habit-forming drugs should notify their congressmen and senators that while the physicians of this country are unalterably opposed to any law which aims to unreasonably or prohibitively restrict them in the practice of their profession, they are in favor of the enactment of H. R. 6282, now pending in the Senate Finance Committee, in the form as passed by the House.

The Value of Swimming as an Exercise.—A young woman who recently distinguished herself by making a ninety foot dive at Atlantic City on a small wager, was credited to Brooklyn as a native by the newspapers. As a matter of fact she was born and brought up in a small Long Island village on the Sound and learned to swim and dive almost as soon as she learned to walk. Visitors have not failed to remark the beautiful figures of the young men and women of these Sound villages, brought up as they are near the water and proficient in canoe paddling as well as in swimming. It is a commonplace that swimming is the ideal exercise as there is scarcely a muscle fibre in the body that escapes contraction and relaxation during the stroke. The art must be learned, however, in still water. People go year after year to the coast resorts and bathe in the surf, obtaining a healthful sort of massage from the breakers and having a glorious time, but they never learn to swim. They are content to hang on to the life lines and jump up and down and scream. This is all very well as far as it goes, but swimming, besides its value as an exercise, would cut down the terrible toll of lives taken every summer from inexperienced young sailors and boatmen. Moreover it is a most graceful art and confers a beauty of carriage well worth acquisition in these days of fierce competition for positions in business offices and elsewhere, and of inestimable value in creating a favorable first impression. Parents might take their young children annually to a still water resort till they have acquired the art of swimming and then to the coast places where, with their accomplishment, they

will have still greater enjoyment of the surf than their uninstructed playmates.

We Learn Slowly in Matters of Health.—Seven hundred thousand children began their work in the New York public schools on September 8th. By this time there are hundreds of well developed cases of measles, scarlet fever, probably diphtheria and other fatal diseases among these children, as has been the case from time immemorial within a few weeks of school opening. These cases will be treated in the latest and most modern way obviously, but what has been done in the way of prophylaxis? Some day, a more intelligent state will spend the summer investigating the sources of infection and, with the care with which tuberculosis has been studied, endeavor to ascertain the original habitat of the virulent germs of the common infections with a view to their utter stamping out. Possibly a combined "vaccine" may be discovered that will protect children for a year or longer, possibly salvation lies in a more energetic personal hygiene, possibly we may incriminate some common article of bed covering or clothing as the carrier; at all events something will be done and we will not remain in the present supine attitude toward these regularly recurring epidemics. If the future remedy lies in a vaccine, the state will certainly be obliged to oversee the process of inoculation; the difficulty of protecting certain so-called educated people against smallpox at this very day makes that certain. Besides, it has always been well nigh impossible to inspire in the public fear of disease that is not yet plainly manifest. The attitude of certain writers and "thinkers" toward smallpox, for example, is exactly that of a kind hearted zoophile who, observing the placid demeanor of the wild animals in the Bronx and Central Parks, should demand their immediate liberation to stalk through our thoroughfares at their will.

School Teachers and Narcotic Drugs.—We are in possession of authoritative information to the effect that school teaching is considered by its votaries to be a nerve-racking profession and that a large number of them are in consequence such victims of narcotic drugs as to purchase them in the largest obtainable containers. We consider this to be a very serious state of affairs. The intelligence of school teachers is certainly above the average, and as to education, they have not only received one much superior to that of the typical citizen, but they are continually supplementing it by reading, travel, and study of their profession as a whole, or of certain specialized departments of it. If such workers easily fall victims to drug habits, less favored individuals must be still more liable to yield to temptation, and the probabilities are that the real extent of the drug habit is not fully understood by even the most earnest and suspicious of investigators.

The worst feature of such wide use of narcotics is the impossibility of making an appeal to reason. The harm done by these drugs is gradual. At first it is out of the question to persuade the victim that he is in any danger, and later, when the drug has firmly gripped him, it is too late for anything but sanatorium treatment with its expense, loss of time, and none too favorable prognosis. There should be wide newspaper and magazine publicity concerning drug habits and this publicity should be continuous, and cumulative, so to speak, like the drugs themselves. Every practitioner should speak a word when he suspects addiction; although if he makes it a routine question in his examination of patients, he will rarely receive any but a negative reply, more or less indignant. The diagnosis without acknowledgement on the part of the victim is not easy, and the more saturated he is, very often the more difficult is discovery.

The Treatment of Corrosive Sublimate Poisoning.—Castaigne, of the Hôspital Beaujon, has an article on sublimate poisoning in *Quinzaine thérapeutique* for August 10, 1913, in which he points out that the classical symptoms are severe diarrhea, vomiting and anuria. Careful examination, however, will usually elicit signs of a pericarditis, and, says Castaigne, if we could diagnosticate disease of the

liver as easily as of the kidney, doubtless we should always find that organ deeply involved. There is evidence that mercury affects nearly every important organ of the body. An accurate prognosis of these cases is almost impossible, but sometimes the vomiting is so severe from a large dose that most of the poison is thrown off and the patient survives. The percentage of urea in the blood, very significant in Bright's disease, is not so in mercurial poisoning and as much as 8 grammes to the litre of blood have been found in the latter and yet the patient has recovered. Castaigne performed Edebohls's operation of decapsulation of the kidney on two patients; one died and one recovered after speedy restoration of the urinary flow. In another case, that of a man aged 45 years suffering from cirrhosis, who took the sublimate with suicidal intent and in whom the anuria set in within 24 hours, Castaigne tapped the abdomen daily and replaced the fluid withdrawn with an equal quantity of serum. He advises bleeding as a general rule to the extent of 100 to 150 grammes daily, followed by injections of glucose serum to excite urination, and the practice of opotherapy by the injection of blood from the kidney of the goat. Despite these measures, the poisoning is frequently fatal, the anuria persisting to the end.

Fatigue.—At a meeting of the American Iron and Steel Institute, held in New York, May 23, 1913, Dr. Thomas Darlington read a paper entitled "What Causes Fatigue?" This paper is so clear, says the *New York Medical Journal* (Sept. 6, 1913), and gives such good views in condensed form that we reprint in part, some of the remarks: "Muscular energy depends largely upon three things: 1. The amount of fuel stored and the ability of the system to bring it into use. 2. The ability of the system to furnish oxygen to burn the fuel. 3. The ability of the system to carry off waste or other toxic substances. Conversely, fatigue is due primarily to the failure of the system to perform properly one or more of these functions." In speaking of storage of fuel, Dr. Darlington states:

After food reaches the stomach there is often much needless waste, particularly of the sugars, due to fermentation in the stomach. The sugars are split into acids before reaching the tissues and so are partly lost for energy. The fermentation is due to two causes: First, to a lack of gastric juice; and second, to an excess of bacteria. A lack of gastric juice, and therefore indigestion, is due to an improper selection of food, to a disturbed mental condition (anger, grief, worry) or to reflex disturbances of the gastric nerves, from chronic appendicitis, etc. Or there may be an excess of bacteria. This is due either to fermented or putrid foods, or to the addition of bacteria to the food from unclean mouths and bad teeth or dirty hands. Overeating and rapidity of eating also affect digestion and therefore promote fatigue. . . To combat fatigue from these causes it would be well to have at plants dining rooms and restaurants, with freshly and properly prepared and well selected foods, furnished at the lowest practicable price, served under cheerful and pleasant surroundings, and with sufficient time to eat.

The author then takes up lack of oxygen as a cause of fatigue, mentions carbon monoxide, which is found so much in the plants of the iron and steel industry, and has such a deleterious effect, and the accumulation of waste, and of the effect of lack of sleep. He advocates the plentiful but careful use of good drinking water, of cold shower baths, of well ventilated workrooms, good sanitary housing, etc. He concludes by saying:

The aim of the employer and employee alike should be to do away with improper causes of fatigue, to the end that the workman may, in the interest of all concerned, do the best of which he is capable, thus growing in strength and in the power to achieve.

The conclusion is that both fatigue and efficiency depend upon the fundamentals of hygiene more than upon exercise alone, and that our aim should be, to use the words of Professor Lee, "to make of labor a physiological rather than a pathological exercise." Thus shall we be able to obey the injunction of the apostle Paul: "Quit you like men; be strong." In the language of Maltbie Babcock,

"We are not here to play, to dream, to drift:
We have hard work to do and loads to lift.
Shun not the struggle; face it. 'Tis God's
gift."

An Ancient Surgical Operation.—One of the most interesting studies in connection with the evolution of the surgeon's art is the extraordinary similarity which may be found between the procedures of modern active practitioners and those that were apparently practiced by their remote ancestors, for the native practitioner is a remarkably conservative type. The earliest form of splint known, discovered *in situ* on the body of an Egyptian of the Fourth Dynasty, finds its exact counterpart says the *London Lancet* (Nov. 2, 1912) in that which is at present in everyday use among the barber surgeons of Upper Egypt. Many modern savage and semi-savage people perform surgical operations—and have done from time immemorial—that wholly surprise those who, following a rather prevalent mode of thought, regard the major operations of surgery as being of a very recent development. And yet surprise at the boldness of these operations should always be tempered by the reflection that the more primitive the state of society the greater the familiarity with the details of severe wounding and subsequent repair of the human body. Even the mutilations practiced by many races for purely aesthetic reasons are operations of no mean magnitude, demanding some degree of skill and boldness from the operator and a deal of fortitude from the patient. One operation, that of trephining, has always proved a tempting theme to the student of the history of surgical procedures. It is an operation practiced today among semi-barbarous peoples; it is one that leaves its imprint on the skeleton and so may be detected in remains of great antiquity, and it is one that, in some places, is so firmly impressed on the popular mind that it seems to tell its history of a once more popular practice. Hudson, of Redruth, and John Fletcher Home have been the historians of trephining in England; from America a mass of new material has come; and on the Continent Dr. Lucas-Championnière has studied the question in all its aspects. His latest publication on the subject[1] brings our knowledge of the history of trephining up to date, and adds a fund of interesting details culled by the author from his vast experience. Among the Kabyles Dr. Lucas-Championnière learned the lore from a recognized practitioner in whose family trephining was considered so much a matter of course that the man's father had submitted 12 times to the operation, and the son himself exhibited four palpable lesions in his own skull. Other peoples among whom the operation is almost equally customary are instanced, and especial reference is made to the practices of the Cornish miners described by Hudson. Among the preserved evidences of the antiquity of this operation the author describes and illustrates instances of Neolithic skulls and heads of Peruvian "mummies" said to have been trephined. There appears to be no doubt that some of these instances are true and brave examples of deliberate surgical attempts at opening the cranial cavity for curative purposes; but great caution is necessary in the examination of any case in which an ancient skull presents those appearances which are suggestive of trephining. The results of depressed fractures, and more or less circular patches of ulceration from pressure or from scalp sores produce appearances strikingly like those of a trephine wound. Slices cut from the curved surface of the skull by the passage of an instrument such as a sword also cause wounds easy to mistake for the circular outline familiar in examples of deliberate cranial surgery. Then, again, it must be remembered that, in the case of wounds of Neolithic age, the very weapons in common use were such as inflicted extremely deceptive injuries, the stone mace-head being an admirable instrument for removing a circular piece of bone from the skull. Such cautions are necessary, for the temptation to discover the traces of ancient surgical procedures has at times led to a too ready acceptance of altogether insufficient evidence. Many imagine that it is common to meet with the wounds of the trephine in the skulls of ancient Egyptians, and yet no ancient Egyption skulls show wounds for which some much more commonplace explanation is not readily found. That the operation is by no means employed only in cases of definite fracture, or even of injury, is

[1]Les Origines de la Trépanation Décompressive: Trépanation Néolithique, Trépanation pré-Colombienne, Trépanation des Kabyles, Trépanation traditionnelle. Paris: G. Steinheil. 1912.

made abundantly clear by Dr. Lucas-Championnière, and it is quite possible that many different conditions have been subjected to the earliest of all man's efforts to treat the human brain.

Build thee more stately mansions
O my soul
As the swift seasons roll!
Leave thy low-vaulted past!
Let each new temple nobler than the last
Shut thee from heaven with a dome more vast,
Till thou at length art free,
Leaving thine outgrown shell by life's unresting sea.

OLIVER WENDELL HOLMES.

How the Laity Could be Educated.—In villages and small towns, or even large ones for that matter, it seems feasible for the regular physicians to get together and announce a series of popular lectures on "When to Consult the Doctor." It would be worth the physicians' while to pay the hall rent and other fees contingent upon such lectures in order to save the community the consequences of ignorance or folly, but, if the matter was properly handled and duly advertised by the personal appeal of each doctor to his patients as he saw them from day to day, it ought to be possible to exact an entrance fee of ten to twenty-five cents; the surplus, if any, could be given to some local hospital. To avoid misunderstandings, *every* local doctor should be invited to give at least one or more of these lectures, for there is hardly a single branch of medicine in which elementary instruction would not be of value to one sex or the other. We think the main advantages to be gained from a course like that mentioned are perfectly self evident, while others would follow, like the stamping out of the traveling quack and the abolition of dangerous counter prescribing. If we were going to give one of these lectures, we believe we should lay emphasis on the point that the written prescription is not always the most important or necessary thing to be obtained from a visit to the doctor. We know that it would be hard to uproot that superstition even in some very intelligent lay minds, but it ought to be done sooner or later. We should point out that the knowledge gained by the physician through the history and physical and clinical examination was the great advantage of the professional visit and that such knowledge can never be elicited save by a duly qualified and responsible practitioner. Even if the druggist knew how to get this information, it would be useless in his hands, while the quack has no use for it whatever; what he wants is knowledge of the financial status of the patient.

Lay Ignorance or Indifference, Which?—A press report states that a man was recently arrested for the seventh time in Philadelphia because his broken nose caused a resemblance to a well known crook. Evidently the victim of these arrests does not know that a simple prosthetic operaton would straighten the incriminating organ so as absolutely to destroy his unlucky likeness to a malefactor. It does not seem possible that a man so afflicted can be aware of the surgical possibilities in his case, but it may be a matter of pure indifference after all. We see men almost daily with small but unsightly birthmarks, to say nothing of victims of chronic hoarseness, visual defects, difficulties in breathing, and other disorders readily amenable to treatment and cure, who go through life handicapped, although they may have sufficient money to consult a specialist privately, and, if not, should know that at any one of a hundred odd dispensaries relief is obtainable. How many victims of chronic constipation experiment with one patent remedy after another till they have induced a permanent intestinal stasis with all its refractory, painful and dangerous symptoms, without ever dreaming of a visit to a physician? Gonorrheal patients accept a prescription from a friend, or buy some remedy of the century before last at the nearest druggist's, with the practical certainty of acquiring a stricture and eventually infecting a wife, who is doomed to become the saddest and most hopeless kind of an invalid. There should be some way of educating the laity as to the necessity of consulting a qualified practitioner for what are now deemed trifles, but which we know often to be symptoms of the most serious import.

ORIGINAL ARTICLES.

ALCOHOL MEDICATION.

BY

A. JACOBI, M. D.,

New York City.

An editorial in the July number of AMERICAN MEDICINE (p. 459) refers to the latest views of alcohol as expounded by Ewald. It states that "all theories to the effect that it is to be classed as a stimulant are about exploded." It is also asserted that "those who are always waiting for some medical oracle to speak can now come over without fear to the modern consideration of alcohol as a sedative or anesthetic." The writer begs leave to say that the "explosion" has not reached his ears. But then, he is quite willing to admit he is not an oracle, surely less so than Ewald who never claimed to be one. If he ever had done so, he would have forfeited his rights when, as the editorial says, he maintained that alcohol would no longer be used in illness. That time must never come, and as far as I can see, should not come, for there are conditions which absolutely demand the use of alcohol as a prominent part of medication.

I do not care to class alcohol anywhere. It has been called, or eulogized as a stimulant, a sedative, an anesthetic, an inhibitory and depressant power, aye as a paralyser. I do not contest observations and experiments either on healthy or diseased men, and on animals. Indeed, I have great respect for experiments and observations in and out of our laboratories, and at your northern exposure windows. One of the most profitable laboratories, however, is the hospital and the private bedside. They have the advantage over an experiment on a dog or a rabbit, for while the experimenter on the latter is not infrequently devoid of clinical observation, when he publishes his result, the clinician seldom, if ever, appeals to the attention of his peers before he has confirmed his observations by scores or hundreds of cases. Great clinicians are more circumspect than loud. Hippocrates, the great, says more frequently than any of his successors, "it seems to me."

Having been in uninterrupted contact with diphtheria since 1858 when it began its renewed murderous attack on our part of the world, I have anxiously looked for means to mitigate or heal what too often manifests itself as absolutely fatal. The virulent epidemics of forty years ago have furnished the formidable examples of sepsis and gangrene which in past were mitigated by my introduction of nasal irrigations, and sometimes restored to final health by local doses of alcoholic beverages. I shall return to that.

Modern work has suggested treatment of many kinds which I was anxious to substitute for or combine with my endeavors. When Emmerich proposed pyoyanase I thought I saw a new light and reasons for enthusiasm. Then, however, Soerensen succeeded, I believe, in proving its inefficiency. Afterwards bouillon cultures of staphylococcus pyogenes aureus were sprayed on the diphtheritic mucous membranes by Schiotz, Page and Catlin with joyous expectations, which were denied any justification (*Lancet,* 1911) by McDonald. Autogenous vaccines were recommended by Forbes, Newshohme and Wright, but have not demonstrated any greater efficiency than previous measures. The incurable form, with formidable lymph

body swelling, nervous prostration and excessive sepsis is always a mixed infection. In such cases antitoxin has early proved unsatisfactory. Then bigger doses, biggest doses, were injected under the skin—the patient died. Despair suggested the intravenous administration of antitoxin. Couveilhier and Carstens 1904 were followed by Master Behring who in 1912 also recommended it, after Dr. Tospischill had published successes. (*Wiener Kl. Woch.*, 1908). When the veins were found too small, the injections were to be made into the muscles (*Berl. Kl. Woch.*, 1909). Altogether this method of administration was regarded to be preferable, *firstly*, because the absorption of the drug was expected to be more rapid, and, *secondly*, because its elimination from the blood was less rapid after the intravenous administration.

All in vain, all. No mixed infection is amenable to the action of antitoxin. It is only the omnivorous pages of a medical journal that boast of successes. Each new method of treating bad cases of diphtheritic sepsis and mixed infections merely followed its predecessors. It will not do to doubt the favorable reports of the medical magazines, nor to disparage the joyous enthusiasm of a colleague who is anxious to communicate a new mode of successful treatment to those who anxiously strive to avoid further calamities. As a rule, however, the number of cases thus treated and reported is small, and if you wait long enough for your defeats they will come to you. Just wait. When in 1860 I began to tracheotomize in diphtheritic laryngitis, I had three recoveries among my first five cases. They were published. Then—lo and behold, in the early seventies I had more than one hundred operations without a single recovery. So I learned wisdom and caution. That is why after sixty years of practice when I trust in alcohol as a powerful remedy in cases of diphtheritic and other sepsis, I may be credited with ample experience both in successes and failures extending over half a century. What I offer is no theory, and no laboratory experiments on the well or sick guinea pigs. My laboratory has been different. My life has been spent amongst the sick only, and the recovering and dying.

A few stray specimens of my observations are as follows: With one of my most respected colleagues I saw thirty-five years ago a boy of five years. Membranes covered his fauces and mouth and part of the lips, and were visible in the nares. Round the neck were big lymph body swellings, now known to all of us as the sure proof of thorough mixed infection. Some membranes could be removed by forcible injections into the nose. It had been bleeding and oozing, the odor was foul. The second heart sound still slightly perceptible, pulse 160, hardly felt at the wrist. Boy restless in his semi-coma, tossing about, feet bluish, not cold, covered with erosions and subcutaneous hemorrhages of different sizes. His whole surface discolored, from drab to blue; hemorrhages small and large in and under the skin. No intestinal hemorrhage. Urine could not be obtained. My friend told me I was not called by him but by the family of the dying boy; he was going down town and on his way would order the undertaker to send the coffin after dark. I begged him not to do that, but to wait until to-morrow. The undertaker however came after dark and left disgusted. Meanwhile I had permission to act. The boy's stomach retained my whiskey, from one to two teaspoonfuls every 15 or 25 minutes, diluted in water.

occasionally in milk or coffee, and his rectum retained a few doses. Within a day he took a pint and a half, perhaps more. We kept on, the boy and I. He was alive when I happened to meet him twenty years afterwards.

A girl of seven years I found in about the same condition thirty years ago. She was a patient of one of our great physicians who when he died suddenly a year ago, proved to the world that there are some men who are indispensable. He said, "now here I have given your whiskey but she will die." How much is she taking? "Beside her other drugs she is taking as much as half a pint each of these two days, and retains it." Very well, just continue, and I will give her my additional half pint. So we did, she took a pint or more daily. And got well.

A boy of three years with the formidable symptoms of mixed infection was "given up." I held out the hope of recovery provided the doctor would succeed in getting into him with other appropriate medication, at least a pint of whiskey daily. He did succeed. Five days afterwards the father called in despair, saying his child was alive but insane. So he was. The boy was better, in fact on the way to recovery, but *drunk*. To me that was a welcome occurrence, for I knew, and want my readers to know, that *no amount of whiskey will lead to intoxication when its effect is wanted to combat sepsis*. I repeat: No amount of alcohol will intoxicate a thoroughly septic person. As soon as my little patient did no longer require his big dose of alcohol, it made him "insane," intoxicated. I had enjoyed that experience before, in many cases, and have since. May be my first case of the kind was that of a refined lady who had typhoid fever fifty years ago. I learned the alcohol practice from Dr. Ernst Schilling, who sixty years ago treated many hundreds of cases of typhoid and typhus amongst the immigrants on Ward's Island. My lady patient, thoroughly septic, took a quart of whiskey daily ten days in succession until the beginning of her recovery; no other drop since.

I want these specimens of alcohol treatment to suffice for my purpose, which is to make facts tell their stories. My cases of thorough sepsis relieved or cured by alcohol extend over more than half a century. My cases have not all been cured, I belong to the class that has to meet failures. But I have seen what was considered hopeless to take a favorable turn. There are in diphtheria cases which are not influenced by antitoxin in small or big doses. That class of cases is not always hopeless when the doctor has hope and discrimination and the courage to fight infection and to cheat the undertaker. I refuse to deal in theories. I cannot tell the cause of the antiseptic action of alcoholic beverages when administered in sufficient doses. I merely refer to occurrences and observations extending over half a century and more. Let somebody else explain. Meanwhile take the hint.

Paronychiae may often be thoroughly drained by gently passing the knife point between the nail fold and the lunula without cutting the true skin. Disinfect with a drop of tincture of iodine, insert a tiny gauze drain and apply a small wet dressing. —*Am. Jour. of Surg.*

Salol is another good urinary antiseptic. Benzoic acid is also valuable—and acidulates the urine when it is alkaline. Supplement it with urotropin or arbutin.

ON THE NEED FOR COORDINATION OF ANTITUBERCULOSIS MEASURES.[1]

BY

SIR R. W. PHILIP, M. D.,
Edinburgh.

Thirty years ago there was placed in our hands the key to the riddle which had defied the wisdom of the past.

From the moment that tuberculosis was definitely determined to be an infective disease the way was opened to its control and eradication. From that moment it became possible to adjust our outlook correctly and to recast successfully the methods of treatment and prevention.

The result was not achievable at once. Much spade work had to be done—and some blasting too—in order to remove the irregular structures and encrusted rubbish which had gathered round the subject during the ages.

Koch's discovery of the tubercle bacillus revealed the bed-rock on which we might build surely.

The determination of the infective nature of tuberculosis was followed by the gradual recognition of its endemic character. The infection spreads among a people because of their social conditions. The conditions which foster the development of the infecting organism are created and maintained by the people themselves.

To get rid of tuberculosis it is not sufficient to be assured that it is due to an infecting organism and to know the characters and life history of the bacillus. It is essential to have a thorough knowledge of the ramifications of tuberculosis throughout the social net work—both in town and country—and to understand the factors which have led to its occurrence and which further its distribution. Much work must be overtaken before we finally unravel the tangle of thought and practice which centuries of ignorance and misdirected effort have produced.

If the course of tuberculosis were definite and uniform like that of most other infective processes and if the majority of cases of tuberculosis followed such a course, the effective handling of tuberculosis would be an easy affair. It would then be simply a matter, as in the ordinary fevers, of diagnosing the condition and sending the patient to hospital for a given period—and there it would end. Unfortunately that rule-of-the-thumb kind of attitude towards tuberculosis prevails widely and threatens seriously to interfere with the general adoption of sound and sufficient measures.

What are the actual facts? Tuberculosis is an infective disease. In that sense every case is essentially the same. But the clinical manifestations of tuberculosis present an infinite variety. No two cases are quite the same. Cases which appear similar, when first seen, may follow very different courses. The case that today seems simple—perhaps latent—may in a short time present grave symptoms. On the other hand the anxious case of today may presently make rapid strides towards recovery. One case terminates fatally in a few weeks time. Another case may last twenty, thirty, forty years.

No other disease, save syphilis, approaches tuberculosis in its protean character and chameleon-like possibilities of change. It requires a prolonged and close apprenticeship to understand the varying moods and expressions of tuberculosis.

[1]Introductory address at the Fifth Annual Conference of the National Ass'n for the Prevention of Consumption, held in London, Aug. 4th and 5th, 1913.

The ordinary training of the medical man does not give him the opportunity to make himself familiar with the constantly changing picture. This has been impressed on me forcibly during many years of consulting work. The practitioner is frequently unable to recognize tuberculosis. He is unwilling to admit a definite case of tuberculosis to be such, because it does not present this or that sign which he has been led to regard as characteristic.

The true conception of tuberculosis as an infective disease, progressing slowly, unobtrusively, insidiously from the point of primary inoculation is little apprehended. Although the invasion proceeds before the eyes of the doctor, it escapes his notice because he has not been trained to look for it. Waiting for something striking, something more serious, he fails frequently to detect the beginnings of disease.

I am sometimes told that a given patient, obviously tuberculous, is free from tuberculosis, or that, even if he be in the scientific sense infected, he is not actually affected by the disease. Thank Heaven if the tuberculous individual does not seem to suffer by reason of his tuberculosis, but don't run away with the notion that he is not therefore tuberculous—that he is not therefore in danger—that he is not therefore worthy of consideration in relation to the great problem which, if it is to be solved effectively, must be viewed and handled in the largest sense.

The claims of scientific and practical medicine are not divergent. They are identical in regard to tuberculosis. With regard to a given patient we must seek answers to the following questions. Is he infected with tuberculosis? If so, what are its present manifestations? Where and how did he acquire it? What should be done for him? What are the future possibilities?

Every case of tuberculosis—even if the manifestations seem for the moment trivial—has the potential of risk in a variety of ways. Alike from the individual and from the public point of view, the seedling of tuberculosis is not less significant than the grown tree. The grown tree is easily recognized. It is certain that every grown tree was at one time a seedling. The seedling is apt to be missed. The tuberculous seedling should be watched for. The seedling can be recognized and labelled by the trained eye as definitely as the grown tree. It is not easy to say which of the seedlings will develop into the tree.

While happily we do not require to say, once tuberculous always tuberculous, it is none the less true that tuberculosis is an insidious infection which, although readily prevented and treated when appropriate means are used for a sufficient length of time, is yet tenacious and illusive in high degree.

The recognition of these features of tuberculosis must be the prelude to any sound programme of prevention and treatment. Because it is insidious, tenacious, and illusive, our attitude must be one of constant watchfulness and untiring care. This is needful for individual cases. It is needful in relation to the scheme as a whole. Once recognized and taken in hand, the tuberculous case ought not to be let slip until the patient is better or the disease has triumphed.

It is because tuberculosis is so insidious, so tenacious, and so illusive, that more specialized procedure has to be adopted in handling it than is needed for other fevers. While the great principles of preventive medicine, which have been found serviceable in relation to other infections are ap-

plicable to tuberculosis, the measures require special adaptation.

Let us go back in time to the early eighties, shortly after the announcement of the tubercle bacillus as the essential cause of tuberculosis. How was tuberculosis then viewed and treated?

There was an effort—in some places a large effort—in relation to the disease, but the effort was effectless for the most part. I recall the crowds of worn, anxious sufferers at the out-patient department of our general and chest hospitals—all sorts and conditions, waiting for what? Waiting for examination of their chests—for the discovery of certain symptoms and signs and for a prescription, symtomatic and empirical, which had little value either for prevention or treatment.

Reaction from such a state of things was natural—was inevitable. It seemed to some of us that if Koch was right, our methods of treatment were utterly and entirely wrong. If tuberculosis was an infective process there was urgent need for the adoption of the principles of prevention and treatment which had been applied successfully to other infective processes, and need likewise for an adaptation of these to the peculiar conditions of tuberculosis. In particular it seemed necessary to get hold of the cases at a stage much earlier than that at which they usually presented themselves for examination.

It was the feeling after some practical way of hitching on these principles so as to overcome the many-headed hydra of tuberculosis that led to the proposal of the tuberculosis dispensary.

The tuberculosis dispensary emerged from the disappointment and dissatisfaction produced by the existing machinery. It was while a junior member of the staff at the Royal Infirmary and the New Town Dispensary of Edinburgh in 1884-86 that the conception of the dispensary method occurred to me.

It was difficult to get the young idea grafted on to the older methods. It became on that account necessary to create new agencies. The first attempt lay in the direction of making a special department within one of the existing institutions. But no one attached to the old institutions was willing to move. It was necessary to erect a new institution with new outlook, new methods and new machinery. The new institution was baptized the tuberculosis dispensary because of its emergence from the older dispensary whose value in many departments of medicine was known and appreciated by the mass of the people.

The methods of the tuberculosis dispensary are entirely different from those of the ordinary out-patient department. This cannot be too much emphasized. The dispensary views tuberculosis as an infective and endemic disease ramifying throughout the social organization in quite unique fashion. Tuberculosis reflects and in turn influences social conditions in extraordinarily varying ways. In addition to being directly responsible for a large proportion of the national mortality and a still larger proportion of the national bill of sickness, it modifies remarkably the course of many other diseases.

The dispensary recognizes the unity of tuberculosis in all its stages and in all its extraordinarily varied manifestations. The aim of the dispensary is that not a single case of tuberculosis shall occur unobserved or remain uncared for in the community.

Once it gets in touch with an individual patient the tuberculosis dispensary never loses hold of him. Either it treats him

directly or it sends him for treatment to the appropriate institution. In the latter case it undertakes his after-care when institutional treatment is over.

Beyond all this it seeks to discover tuberculosis in its recognized haunts. One of its most valuable functions is to trace the patient to his home—to get at what I have termed the "tuberculous nests," to investigate faulty environment and to search out tuberculous disease among the other members of the household and in turn to undertake the care of these. It takes the home and household in hand so far as it may be infected by tuberculosis.

Every tuberculous individual coming within the cognizance of the dispensary is dealt with (*a*) in his own interest, and (*b*) in that of the community.

Personally the sick man receives the form of treatment appropriate to his case, either in his own house, or at the dispensary, or in one of the institutions linked to the dispensary—the treatment being directed and maintained until all risk is past.

From the point of view of the community, the patient leads the way to the home and the household. While obviously looking after the sick man, the dispensary takes occasion to study his surroundings and to search for other cases. This is attained by the visits of (1) the dispensary nurse and (2) the dispensary doctor, which follow in every instance. It is of first moment that these visits should be undertaken by skilled members of the dispensary staff. Thereby the work is done uniformly and efficiently and risk of overlapping is avoided. Where the home conditions are such as to call for structural alteration of the dwelling, or, it may be, its condemnation, the matter is referred by the dispensary doctor to the medical officer of health, just as would be done in similar circumstances by a private practitioner.

In this way the tuberculosis dispensary becomes the centre of anti-tuberculosis activity within the given area and the connecting link of an organized system of anti-tuberculosis agencies which include the sanatorium, the tuberculosis hospital, the farm colony, the tuberculosis school, etc.

This is something entirely different from the ordinary out-patient department. In proportion as the tuberculosis dispensary is merely an out-patient department such as we are familiar with in general and special hospitals, its efforts in relation to tuberculosis will be ineffectual and for the most part futile.

Unhappily there are indications in some directions which suggest a reaction in favor of the attachment of this important activity to the hospital out-patient department. The proposal to delegate the functions of the tuberculosis dispensary to the out-patient department of a general hospital—unless that out-patient department be reconstituted so that special accommodation and special service is provided for tuberculosis—is in my opinion to overlook the needs and to trifle with the issues. While there may be circumstances sometimes where such attachment may be sanctioned temporarily as a matter of convenience and economy, I am satisfied that the general adoption of such a plan means failure, disappointment, and ultimate delay in the control and eradication of the disease.

The time has come when tuberculosis in its remarkably varying expressions must be handled as a definite entity. It is extensive enough in all truth. It has caused and is causing sufficient social damage to justify the procedure. The real working centre of operations against so potent and

insidious an enemy cannot be the ordinary out-patient department of any hospital, or the charity organization office, or even the office of the medical officer of health. With all these the dispensary must be in closest touch but the necessary operations are so extensive and varied as to warrant the erection of a special department of public health activity—a department which shall be concerned with tuberculosis alone. The department will, of course, be in intimate relationship with the medical officer of health and may be under his administrative control.

In relation to notification the dispensary plays a two-fold part. In the first place it constitutes an important notification agency. The dispensary attracts tuberculous patients at all stages who would in many cases either not consult a doctor or might present themselves for advice under conditions where the detection of disease is less likely. By its system of examination of homes and households it discovers tuberculosis at the earliest point. Thus I find that of cases notified during 1912 in the Borough of Kensington no fewer than 61.8 per cent. were notified by the tuberculosis dispensary and similarly in the Borough of Paddington 40.3 per cent. were notified by the dispensary. In Edinburgh more than 50 per cent. of the cases notified under compulsory notification of pulmonary tuberculosis have been notified by the dispensary.

After notification the dispensary once more steps in and decides in practical fashion what is to become of the notified individual. The tuberculosis dispensary takes and keeps hold of the tuberculous patient in his own interest and that of the community.

While the tuberculosis dispensary must be linked closely with every agency concerned with the oversight and care of tuberculous cases, it must be linked likewise with the general body of the practitioners to whom is committed the treatment of tuberculous patients at their own homes. The resources of the dispensary should be placed at the service of the doctors for the purpose either of consultation or of treatment. The expert staff of the dispensary should be available to give advice on any question in relation to tuberculosis. Enquiries should be welcomed on all subjects relating to the disease.

Such is the purpose of the tuberculosis dispensary. Such is the conception of the tuberculosis dispensary adopted by the Departmental Committee on Tuberculosis appointed by the Treasury to report upon the consideration of general policy in respect of the problem of tuberculosis in the United Kingdom, in its preventive, curative and other aspects, which should guide the government and local bodies in making or aiding provision for the treatment of tuberculosis in sanatoria, or other institutions, or otherwise. That Committee deliberately placed the tuberculosis dispensary as the first unit in the antituberculosis campaign. It was, in their opinion, to be the centre of antituberculosis organization. The view is writ large on every page of the Departmental Report.

My belief is that the demands of tuberculosis are so large and the issues so complex as to justify the establishment of a special department of public health activity. It is important enough to call for the best brains and the best efforts of the community. The physical and economic disturbance produced by tuberculosis is incalculable. This has been recognized by our working men's organizations. It has been

recognized by our legislators. The time is past for academic discussion in half hearted fashion of the relative values of this or that institution in the treatment of tuberculosis. What is wanted is an organized and co-ordinated scheme, which will include and link together the different institutions and agencies which the circumstances require.

In every campaign there must be head-quarters. In the great campaign against tuberculosis there must exist one common centre where everything is known regarding every movement of attack and defence, and in particular where everything is known regarding every case of tuberculosis which has been unearthed in the area. If the tuberculosis dispensary is to be worthy of the name it must be the centre of such an indefatigable organization.

Every case must be registered there and every fact about every case. Once registered the case must not be lost sight of. Every additional fact regarding it must be recorded. There can hardly be too detailed information. The significance of such centralization cannot be over-estimated.

Tuberculosis is the great plague spot in our civilization. It is the result of social faults for the most part ignorantly committed throughout a long series of years. The facts of tuberculosis and the meaning of these facts must be looked at fairly and squarely. Hitherto society has been content for the most part to deal with one small corner of the field. The eradication of tuberculosis means much more than this. The problem must be tackled in large, business-like fashion. If the nation is in earnest the end can be attained.

The one guiding idea in the whole campaign should be the unity of tuberculosis. The extraordinarily varied and changing aspects of the disease are but different phases of one and the same infective process. This is the justification of the universal notification of all cases of tuberculosis. To propose to limit notification to well marked cases, as, for example open cases with bacilli determinable in the discharge, is to cripple effort at the outset. I remember when in the old days—I speak of the eighties—one pressed for notification it was asked with scornful scepticism, "Where is this to end? Would you notify a tuberculous gland or a tuberculous joint?" And the answer was decidedly, "Yes!"

Now that it has come about, after years of criticism and active opposition, that notification of every form of tuberculosis has ben ordained, we may hope to accumulate statistics of real value regarding the amount and distribution of tuberculosis in a given area. For the attainment of this much depends on the good will and energy of the general practitioner, the efficiency of the tuberculosis dispensary, and the honor and tact of the public health department in respect of official secrecy, so that no one can reasonably complain of discomfort or interference accruing to him or his household through the procedure.

But notification is not the final word. Unfortunately now that it has been attained, we are threatened in some quarters with the same spirit of dilatoriness as if in notification we had got as far as we need. Contrawise we are just at the beginning of things.

The most pressing need is for a common system for dealing with the varying degrees of infection—a system based on the unity of tuberculosis which realizes that the slightest case is potentially of no less danger than the pronounced case and that the slighter manifestations are worthy of no less attention than the grave—a system

which once a case has been notified will keep cognizance of that case and of its environment so long as is necessary.

What is true of one area is applicable to the community as a whole. The same broad outlook must be taken everywhere. There must be the same general plan of campaign. To make this effective there must be a central administration clear in its conviction as to what is the proper way and able to mould policy and direct procedure throughout the country.

The great defect in connection with the antituberculosis activities which have been called into being by the Insurance Act is the absence of such a central directing force—strong and sure because of knowledge and experience of the disease. If we are to have harmonious movement throughout the campaign we cannot afford to let each village piper compose the music for the march.

On the wisdom of our decisions and on the effectiveness of our organization depend the fortune of the individual patient, the health of the nation, and, in a certain sense, the fate of the race. The facts of tuberculosis must be learned practically and the lessons of experience utilized. They must be our guides as to procedure. It will not do to let the campaign be regulated by the hazardous guess of the bureaucrat whose experience in relation to the handling of tuberculosis may amount to little more than a knowledge of the mortality columns on his desk or a reminiscence of the scanty presentation of the subject made to him as an undergraduate through the occasional case of tuberculosis that reached the hospital where he trained.

It is the unity and withal the extraordinary variety in tuberculosis which create the need and at the same time point the way. The essential unity underlying the endless diversity of expression calls urgently for centralization of intelligence and direction. The remarkable diversity of manifestations affords the reason why differentiation is necessary in the provision of institutions for the treatment of disease. The experience of thirty years satisfies me that it is only by intimate correlation and careful coordination of the several factors that satisfactory and permanent progress will be made in the struggle with tuberculosis.

INTRAVENOUS INJECTIONS OF NEO-SALVARSAN IN SEPTIC SCARLET FEVER.[1]

BY

LOUIS FISCHER, M. D.,

Attending Physician to the Willard Parker Hospital, etc., New York.

In a preliminary report read by me at the New York Academy of Medicine before the Section on Pediatrics last March,[2] I reported a series of five cases wherein intravenous injections of neo-salvarsan were given. Septic cases were chosen and those severe types of noma complicating scarlet wherein a bad prognosis was given. The mild and severe types were omitted from this study.

The median basilic vein was used in five cases, but it was found in the later series injected that the jugular vein is more preferable, especially in small children. With a supporting pillow at the nape of the neck the jugular vein stands out prominently and the technique of the injection is simplified.

[1] Presented to the Section on Diseases of Children, International Congress of Medicine, London, 1913.

[2] Archives of Pediatrics, May, 1913.

Owing to the small size of veins in infants and children, when the median basilic vein was used, it was found necessary to expose it in order to be sure that the injection was properly given. No reaction such as an acute febrile attack nor shock, nor rash followed the injection.

In some cases 0.2 of neo-salvarsan dissolved in 20 to 40 c. c. of sterile water was injected. In a few cases 0.3 and in two cases 0.4 was injected.

When high fever existed, a decided antipyretic effect was noted within 24 to 48 hours after one injection of neo-salvarsan. This antipyretic effect was striking and was noted in twelve out of fifteen cases injected.

Celia H., nine years old, was admitted to the Willard Parker Hospital in a very sick condition. She had been ill three days. On the day of admission her pulse was 180, temperature 104, rose to 106.4 on second day, pulse 178. On the third day she received 0.2 of neo-salvarsan. A gradual improvement was noted. The case was discharged cured.

Morris J., twenty years old was admitted with a septic type of scarlet fever. During the third week he developed a series of phlegmonous abscesses with suppuration, that spread to various parts of the body. The suppuration was confined to the sheaths of the muscles of the upper and lower extremities. He was in the hospital about two months when an injection of 0.4 neo-salvarsan was given. A decided improvement was noted and he was discharged cured.

An interesting case is Dora B., fourteen years old, septic on admission. An intravenous injection of 0.3 neo-salvarsan was given on the eleventh day of illness. An improvement was noted in her temperature. Case recovered without complication.

Loretta S., twenty-one years old was ill five days. The temperature reached 105, pulse 156. An injection of 0.4 was given intravenously with decided antipyretic effect. The case recovered.

In another case, child nine years old with a severe form of scarlet fever aggravated by chorea, although the case seemed one in which a specific was expected, two intravenous injections given at intervals of four days, showed such slight improvement as to hardly justify the speaking of a benefit from the arseno-benzol. The child was discharged cured from the hospital. Much of the benefit must be attributed to the rest and the diet as well as to the neo-salvarsan.

Chile C., three years old, was admitted with a moderately severe type of scarlet fever. Later a complication of noma developed, and this was the reason for the injection of 0.2 neo-salvarsan. Within three days after the injection a slight improvement was noticeable and this continued steadily until the case recovered, in all ten days from day of first injection. The noma involved the pharynx, tonsils and soft palate.

Another case of scarlet fever was admitted in a septic condition. Later a severe noma was discovered involving the tonsils and cheek on both sides. The extensive slough with necrotic patches and foul smelling discharge continued. The case was one of profound sepsis and 0.3 dose of neo-salvarsan was injected intravenously. The child lingered two days, and died.

A study of the cases here reported will show the peculiarity of the infection and the result achieved with the treatment. While fifteen cases have now been subjected to this treatment by me I feel that a larger number must still be treated before passing

on the merits of this therapeutic agent. One fortunate point stands out prominently that commends this treatment, we have not seen one deleterious symptom follow the use of neo-salvarsan.

The prognosis in septic scarlet fever is fatal. The profound toxemia involving the myocardium and the kidneys offers little chance of recovery. The resistance to the toxins in scarlet fever is gradually lessened, and after several weeks of continued sepsis the devitalization is so profound that we rarely see a case recover.

The mild cases of scarlet fever recover as a rule without complications. There are some in which the disease begins mild and ends with severe complications. The outcome of scarlet fever can never be judged at the beginning of the disease. With the severe type of the infection in which a profound sepsis manifests itself early, the situation remains critical.

A study of the temperature curve following the injection is interesting. The injection was usually given when the disease appeared to be at a standstill, with a decided loss of resistance.

To speak of specific effects of neo-salvarsan would be unwarranted but to condemn this drug would hardly be justifiable when an unbiased study of the results obtained are noted.

I believe there is some virtue in neo-salvarsan and that it merits a further and extensive trial for it has benefited some of the cases here reported.

What impressed me was the decided antipyretic effect following the use of the drug, and while there was no immediate amelioration of the symptoms, the neo-salvarsan seems to offer more resistance by giving a general tonicity to the system.

REFLECTIONS ON MOOT SUBJECTS.

BY

ALBERT F. FUCHS,
Loyal, Wis.

It is remarkable how persistently the doctrine of immunity holds its place in medical thought. Instead of lessening in importance and becoming shaky, the dogma seems today more firmly fixed than it was when Richter entered a protest some seventy years ago. In the face of all manner of evidence serving to disclose its weakness, if not its utter untenability, the thought of *immunity* and *immunization* dominates in the field of practical medicine today. Man, in his desire for amelioration from the evils of epidemic disease, has, seemingly, sent the physician upon a restless quest after specific preventives, the promise of which—so the physician claimed—was born over a hundred years ago, when vaccination was given to the world. When and how the thought originated that *one attack of the common contagious diseases secures one who recovers against a second attack,* I have not been able to determine. It was sometime held that Thucydides, in his account of the Athenian plague, gave expression to it. Today, however, it is maintained by epidemiologists and historians that Haeser's interpretation of the passage in question, is the correct one. That is: "That one who withstood such a murderous disease, need not fear death in a second attack." And with this there went the further conclusion, "That the possessor of such a constitution could withstand any other plague." The oldest reference I can find regarding the doctrine, is contained in the writings brought together by Gruner under the title *"De Variolis et morbillis fragmenta medicorum Arabistarum,* * *

1790." Among the authors by Gruner are: Michael Scotus, Valescus Taranta, Gaddesden, and Gordon. Scotus wrote in the first half of the thirteenth century, Gaddesden and Gordon about 1310-1320, Valescus Taranta in 1418. Taranta says: "Variola and morbilli have a common origin which is the corruption of the blood of the fetus through the retained menstrual blood of the mother during pregnancy." The passage in Gaddesden, who I suppose took from Gordon, is: "Hence follows that but few escape an attack, and for the same reason few have more than one attack, the first not having purged the system." Of the sixteen writers mentioned by Gruner only Menghus Faventinus, in his *"Opus de genere febrium. Venet., 1537"* remarks on the contagiousness of the diseases in question. The passage as cited by Gruner is: "(Variolae) *quandoque moventur ex contagione in aliquibus."*

"The proposition that: "whoever has once sickened with a certain specific—contagious or infectious—disease and recovered, will not sicken again with the same disease, can only be certified in two days." (Gottstein.) Agreeing as I do with Gottstein, I shall confine myself at this time to treating of these two ways. One course is, by direct clinical experience, the other is by the way of statistics. To base one's argument on one's experience in this matter, it is necessary that the experience be extensive, that it cover one and the same group, and extend over a long period of time. It is also to be remembered that experience in this matter is a variable power, not something definite. The physician's mental attitude as to doctrine, is a prime factor to be reckoned with. Tied to doctrine, to the symptomatology of the text-books, he is mentally blind. A recent epidemic observed by me may serve to illustrate this point.

The first cases, a family group of four children, complained of sore throat, all had a temperature slightly above normal, submaxillary glands enlarged and tender. I was told that a case of diphtheria had been diagnosed in a family attending the same country school. Three swabs taken from different throats were sent to the state laboratory: report was negative. Second case, a young man, severe sore throat, swollen and tender glands, moderately high fever, chilly and headache. Swab sent in: report, "Crippled forms Klebs-L.; of no importance." I have every reason to think this a case of diphtheria, and I am still in doubt. Next cases had practically no sore throat, but the submaxillary, and in some, all the cervical glands, in quite a few the axillary and inguinal glands were enlarged. I was now quite sure I had to do with an epidemic of "glandular fever" *Pfeiffer,* but what I had taken for the flush of fever, a transient erythema, proved to be the initial rash of German measles. Among those observed by me were a number of adults: in one family of five the parents sickened worse than the two children attacked. In the first group there certainly was no rash, and very little complaint about soreness of neck or glands; a second call was not made. The young man, and all the other adults complained of the soreness about the neck. I have a confession to make: the diagnosis was put into my hands by an old woman. If now I turn to "Hartman, 1866," "Choulant, 1838," "Niemeyer, 1871," "Niemeyer-Seitz, 1884," "Lange-Bruckner, 1896," I find no mention of glands. Osler, 1893, has this to say in his text-book: "The lymphatic glands of the neck are frequently swollen, and, when the

eruption is very intense and diffuse, the lymph-glands in the other parts of the body." Edwards, 1884, mentions only the glands about neck, whilst Atkinson, 1887, speaks of these and adds: "and often other glands." Edwards and Atkinson cover an extensive bibliography, and the rash receives full consideration. Speaking of the adenopathy Atkinson makes this trite observation: "Its usual presence is almost universally admitted. It must not be forgotten, however, that similar adenopathies are sometimes seen in measles. Its extent is not at all proportionate to the character and intensity of concomitant symptoms. Not rarely it is the first and only symptom to attract the patient's attention. It may not be amiss to suggest here that some of the peculiar, acute, and transitory multiple glandular enlargements about the head and neck, without eruption but with mild fever and tenderness, that sometimes prevail extensively, the etiological relations of which have eluded identification, *may* depend upon rötheln." And Claus says: "No weight is to be laid on the form of the rash." And he says further: "Differentiation between measles and scarlet fever is sometimes impossible." In conclusion, as to rötheln, I may add that Hebra and Kaposi as late as 1886 claimed that it was not a distinctive disease. They also claim that varicella, varioloid and variola are gradations. Further, this is the only epidemic I have seen in the 21 years of my residence here; now what chance of my observing another epidemic? If new here, then six years, probably a year or two more will pass before a second epidemic occurs. Who will then observe the epidemic, and will such observer be competent to compute the value of the factor "error" that enters into all our clinical experience?

A very weighty matter to be taken into consideration is, that those who uphold the doctrine are trying to prove a negative. I need not say that there is no such thing as "proving a negative." That a man was not present, and could not be present when a certain criminal act of which he is accused was done, is shown by proving a positive alibi. What now is our real experience regarding infectious, or contagious, diseases. I suppose that every physician who has been in active practice for a term of years has seen epidemics, or at least one epidemic of pneumonia. I recall vividly an epidemic observed in 1897-1898 and comprising between 35 to 40 cases of frank croupous pneumonia. One of my patients I had treated five years previously, and he has been in my hands at least twice since then, for the same disease. Another patient has been in my charge for a like number of sickenings, three children with three pronounced attacks, (last attack followed by empyema, 1911, boy), and two of these had larval attacks I do not count. In a man with serious valvular trouble, two attacks were observed, and he assured me that he had gone through four attacks in Germany. The number who had two attacks I do not recall, and I do not take into consideration the terminal pneumonias of Bright's disease. "No acute disease recurs with such frequency." With the possible exception of typhoid, not one of the common infectious diseases with which we have to do, and of which we know the specific exciting agent, gives us any reason whatever to support the doctrine. Now typhoid does not frequently occur in epidemics, and certainly not in wide-spread epidemics like measles, nor is it contagious in the sense that measles is. My records comprise thirty cases: Of these thirty, I would be called to

attend at most eight, if all sickened again. The whole number of cases observed was as 1 is to 80 of my clientele. According to the law of probabilities, there is not the remotest chance of my seeing one of these eight in a second attack, leaving immunity out of account.

Again, whooping cough may be brought forward in evidence that there is only one attack, no matter how many times exposed thereafter. However, epidemics of this disease are infrequent, and it is preeminently a disease of early childhood. Yet, notwithstanding this, I have twice observed second attacks, and I have seen not to exceed fifteen cases in all. If one case was error, then we still have seven per cent. of second attacks, and the number fifteen is below seven per cent. of susceptibles in country population. My experience with measles may be called exceptional, if not remarkable, but it is not. Three epidemics were observed: during the first, which was widespread, I saw a large number of adults. Practically all of these assured me they had been sick during childhood. My oldest boy took sick, but not the baby. In the next epidemic, wife and both boys had an abundant rash, and my wife assures me she was sick as a girl. In the last epidemic, wife and youngest boy sickened again, with a plentiful rash, and my wife asserts the oldest boy also had a rash, but not typical as when he sickened before. Error is out of the question in these three cases: in four other individuals I saw the first and the second attack; the rash being typical in all. Scarlatina is preeminently the disease of varied and indefinite symptoms. During extensive epidemics, the number of adults going about with sore throats, slight and severe, may be counted by scores and hundreds. Children run about with a trivial cold, and you are later called in to do battle with acute nephritis of the most severe type. I call to mind dozens of cases of sore throats in the parents when the children were "not sick at all." But examination disclosed peeling in one child, a strawberry tongue and slight fever in another, a well defined rash without fever or any indisposition in a third. What conclusion may I draw? *That anyone of these children, all of the same family, may sicken again with the same disease. That neither parents or children will recall what I then said, or lay no weight on it. In either case, the physician in attendance will proclaim it "the first attack," and physician, parents and children, will confirm the diagnosis by the doctrine, and they will consider the doctrine confirmed by the diagnosis.* It works beautifully both ways.

"O thou that in the *doctrine* does dwell,
Wha, as it pleases best thysel,
Sends ane to Heaven an' ten to Hell
A' for thy glory.
And no for onie guid or ill
They've done before thee."
Adapted, with apologies to Burns.

If, as I conceive, the doctrine in question had its origin in man's so-called experience with smallpox, the doctrine now seems to find its sole prop in this disease. As our knowledge of smallpox has grown, the evidence in support of the dogma of immunity because of a previous attack, has manifestly become more and more untrustworthy. Unfortunately, as if to avow our unalterable belief, in what, scientifically, is becoming untenable, we transfer a word—vaccine—connected with smallpox for scores of years, and only with pox, to immunization in other diseases. In smallpox also, clinical *experience is fallacious,* and we seek a prop in statistical and historical data. Now it so happens that statistics is "the science of the actual" and what actually did occur

under the statistics that may be brought forward, is tellingly expressed by the above quoted lines. The case of once sickening is brought to light, the others are consigned to "darkness."

"Now—as Gottstein rightly says—the whole demonstration of acquired immunity through a previous sickening with a disease and recovery, is suffering with a great elementary fault, namely: the utter disregard of the laws governing actuarial calcutions." In round numbers I have seen, say fifty cases of smallpox, but I am not able to say, and it is practically impossible to determine what fraction of the susceptible who were exposed took sick. The fifty cases were distributed over four epidemics, three of these were strictly limited to three family groups, the last epidemic was widespread. To my personal knowledge, two of the fifty had been sick with smallpox before, one of these was pock-marked. Two had been vaccinated and revaccinated, and one had been recently vaccinated. All of the cases were so-called varioloids, there was no secondary fever. The maximum rash was observed in a nursling; here the tip of the finger could not be placed on sound skin. In this case, practically all of the papules went to pustulation and the little patient was covered from head to foot with scabs and crusts; pitting about the nose. The recently vaccinated case, the two revaccinated, and the two who had had smallpox before, were among those who had abundant rash. The minimum of rash was represented by two cases, each with one papule, and they occurred in two families, where other members with more abundant rash served as controls. It so happens that I know the material hereabouts fairly well; of that material I have helped over 500 children into the world, and of these I have not vaccinated one per cent. At a liberal estimate, not to exceed five per cent. of the country population of Wisconsin is vaccinated. Of the material observed by me, there was: recently vaccinated 2 per cent., revaccinated 4 per cent., and *immune* through previous sickening, four per cent. I may express more forcibly in other words. Of the whole population, not one-half of one per cent. had been recently vaccinated: two per cent. of my material was recently vaccinated. Not over one per cent. of the people had been revaccinated, four per cent. of my sick had been revaccinated. So far as known, not three per cent. of the people had had smallpox; four per cent. of my cases were repeaters. And all of these immunes, were among the abundantly rashed, and longest sick.

There is another factor that has not been emphasized, and which I have repeatedly pointed out. The doctrine that one attack of measles, smallpox, scarlet fever, and, to cite only the eruptive fevers, rötheln, secures one against a second attack, serves to hide mild and atypical cases, and vitiates attempts at prevention of epidemics.

So far as our doctrine is concerned I have, I firmly believe, shown how little reliance is to be placed in the *experience* that has been brought forward in its support. Individual mental acumen, and above all, impressions, count for nothing in this matter. In fact, to speak of our *experience* here is equivalent to talking about observing the unobservable. Experience in support of this matter is not evidential at all; simmered down, it becomes merely belief. The teacher who propounds the dogma in question is, in my opinion, spreading false doctrine, and closes the minds of his pupils.

In conclusion, I may say that this, and related subjects have occupied much of my

spare time for twenty-five years. My first paper, a crude effort to cover a vast field, appeared in the *"Transactions of the Wisconsin State Medical Society, 1897."* In the same year, Gottstein's *"Allgemeine Epidemiologie"* was published, and Reibmayr's very interesting *"Inzucht und Vermischung beim Menschen"* came from the press. I can therefore, claim no originality. The subject was in the air, so to speak.

SOME REMARKS ON THE PRESENT DAY ASPECTS OF INFANT FEEDING.[1]

BY

C. K. JOHNSON, M. D.,

Instructor in Pediatrics, University of Vermont.

Burlington, Vt.

In discussing this subject that is essentially so interesting to every general practitioner, it may perhaps be well to first review briefly the history of infant feeding. It was observed long ago that artificially fed infants did much better if part of their food was fresh milk of some kind. It was also found that milk from different animals was unlike human milk. Many attempts were made to make cow's milk more like human milk in its composition. Upon analysis both human and cow's milk were found to contain proteids, fat, carbohydrates, mineral salts and water but that these ingredients varied in their percentages and properties.

The proteids being more abundant in cow's milk than in human milk obviously led to its dilution for infant feeding. At first water was used as a diluent, but later it was found that when cereal gruels were used as diluents the curds formed in the stomach were softer and more easily digested. Still later the use of peptonized milk came into quite general use, partial peptonization causing only small soft curds to form in the stomach and complete peptonization preventing them entirely.

At a still later date when the action of bacteria upon milk became known, sterilization seemed to be the thing to do. This, however, was soon found to affect the milk in some way that lowered its nutritive properties. Then pasturization was introduced. This method has much in its favor but when we realize that this process only kills the acid-producing bacteria and leaves those that attack proteids free action and that in the milk so treated if not kept below 50° F. these putrefactive bacteria will multiply rapidly, pasteurization has its disadvantages. Such a milk while it may not taste sour may have had the proteids attacked by the putrefactive bacteria and we will have digestive disturbances in the infant taking it. It is pretty generally realized, therefore, that it is better to obtain a clean milk with a low bacterial count which if properly kept will not require pasturization to kill the bacteria.

This brings us up to the question: Are we sure that the infants under our care are getting the best milk possible to obtain? We have been taught that an infant could not readily digest the proteids of cow's milk and in many infants this undoubtedly is true, yet I can cite evidence to the contrary showing that many infants can digest relatively high percentages of the proteids. Holt[1] has shown that an infant can for a considerable period of time digest as high as 6% of proteids, providing there is a sufficient whey content in the mixture. If this whey content is too small, a rise of temperature results with a retention of

[1] Read before the Burlington and Chittenden Co. Clinical Society, March, 1913.

chlorides with fever continuing as long as the whey content is low and disappearing as soon as the amount of whey is increased. This shows the importance of the salts on nutrition which has previously been pointed out by Finkelstein, Meyer and others.

Likewise many pediatrists now using whole milk mixtures are giving relatively high proteids. Quoting Holt: "After experimenting along this line it seems clear from my observations that one may use considerably higher percentages of protein in milk formulas than the 3.5 per cent. of Finkelstein's formula. This is a point which may be of practical importance in conditions in which there is marked intolerance both to fats and carbohydrates. Such high proteids as 4.5 per cent. or over should only be used for limited period and never given at all except with a suitable proportion of whey."

Some held the view that the great difference between the two milks was their different reactions. The cow's milk being acid and human milk alkaline. So lime water was added to the diluted milk to make the cow's milk more like human milk in reaction. We now know the reaction theory was not wholly correct for if we use phenolphthalein as an indicator we will find both milks of acid reaction. True it is that cow's milk is slightly more acid. For example: We would have to add more lime water to cow's milk to overcome the acid reaction than we would to human milk for the same result. It was generally stated that 5% of lime water added to cow's milk gave the same reaction as human milk. Bicarbonate of soda and other alkalies have also been advised. The alkalies produce some changes in the proteids as well as on the gastric secretions and may be useful in certain conditions. Grulee states, however, that there is no scientific or practical reason for the addition of such alkalies as sodium bicarbonate or lime water to the milk, and their use may be dispensed with without changing the nutritive value of the mixture.

It was held by Czerny that fat was the greatest factor in causing digestive trouble, while more recently Finkelstein and his followers tell us that sugar is the chief cause. Holt says that we are safe in emphasizing that in the healthy infant digestive trouble is most likely due to fat, while an infant with a disordered digestion may be disturbed by any one of the elements. My experience is in accord with Holt that infants are often fed too high a percentage of fat, this causing fat indigestion, fat constipation, and if continued, malnutrition. I could cite many cases bearing on this point.

It is now recognized that no single milk formula can be substituted for human milk as each infant is a law unto itself. This statement I wish to emphasize. To feed infants of a given age on a given formula copied from a memorandum book will never enable a practitioner to be a successful infant feeder.

The first phase of the problem is when should we put an infant upon an artificial diet? We are all familiar with the usual contra-indications for nursing, but one point I wish especially to bring out is that often with acute illness of the mother, an infant may be removed from the breast temporarily and later returned to the breast, the secretion in the meantime having been kept up by the use of a breast-pump. It has been fully proven that the secretion of the breast can be kept up in this way for long intervals. I here quote from H. L. K. Shaw,[2] "A baby five weeks old had been exclusively breast-fed for two weeks, since then she

had been fed on several formulas and had lost in weight. The mother had plenty of milk but because the baby had colic she had been told by her physician to wean the baby; she still had plenty of milk and used the breast-pump once or twice a day to relieve herself. Analysis of the milk showed practically no fat. She was ordered to stimulate the secretion of milk by pumping regularly every two hours and massaging the breast. In a week there was 2.5 per cent. fat and later 3 per cent. fat. Baby now nursing regularly and gaining in weight although she is having two supplemental feedings of modified milk."

Wile[3] reports six infants, nursed again, ten days to one month after weaning. Grulee[4] reports an infant removed to a hospital for six weeks on account of illness, it then returned home and nursed its mother. It previously had been breast-fed.

Another class of patients which to my mind are not generally handled to the best advantage at least for the infant, are those mothers whose supply of breast milk becomes insufficient for nourishing the infant. In these cases we may institute *complemental feeding,* a term recently coined by Southworth. This method is the substitution of one or more feedings of modified milk for a corresponding number of breast feedings or we may use the so-called *supplemental feeding,* that is, putting the infant to the breast for a certain period, after which the infant is given a bottle of modified milk and allowed to nurse until satisfied. In such cases care must be taken not to sweeten the milk too much as this may tend to wean the infant from the breast entirely. I might caution again not to begin with too high a percentage of fat, as this will surely cause vomiting. This supplementary method of feeding in many cases seems nearly as beneficial as entire breast feeding and is certainly far superior to entire artificial feeding. This method also relieves the mother of the drain of over nursing. These infants should not be allowed to empty the breast as it is well known that the first milk drawn from the breast is much poorer in fat than the last milk taken from the same breast. I might here cite a case in which a sample of milk taken before nursing showed 1.39 per cent. fat and a sample from the same breast taken after nursing showed 5.65 per cent. fat. Another case showed similar conditions. Infant 6 months, breast fed, weight 20¾ lbs., very fat with a tendency to eczema—he nearly emptied the breasts on 3 hour feedings. A sample of milk taken before nursing showed: Fat 3.87%, after nursing 6.60%. This teaches that the stripping or last milk may cause indigestion by the high fat percentage. This fact is taken cognizance of by the men who are advocating long interval feeding, in that with this method the breasts are well filled and the infant only partially empties them getting a low percentage of fat. The fat per cent. could also be lowered by nursing both breasts at each feeding period. When we have decided to feed an infant artificial food we naturally turn to cow's milk as the nearest approach to breast milk. It is often said that such an infant cannot digest cow's milk. In answer to this I could not express myself better than to quote Dr. J. L. Morse, who says, "it is extremely unusual for a baby to be born with an idiosyncrasy against cow's milk." He also believes that the improper use of cow's milk may develop a temporary if not a permanent intolerance for cow's milk.

We should all realize that the basis of growth is proteid, that is, every infant re-

quires a definite amount of this nutrient element for proper growth; also that this proteid must be backed up with a proper proportion of carbohydrate and fat so that it may be used for growth and not drawn upon to supply energy which should be supplied by the fats and carbohydrates.

A food low in proteid long continued will cause anemia, feeble musculature, poor circulation and various functional disturbances. Some of these children may be very fat due to a high carbohydrate content of their food as often seen when certain proprietary foods are used.

Sugars.—As previously mentioned in my paper the carbohydrates are of use for the production of animal heat. They also increase the body weight by being partly converted into fat.

The calories available from any sugar depends upon its carbon content. The carbon when it comes in contact with oxygen yielding heat and energy.

It has been shown that there is no great difference in the various sugars in their carbon content. So far as their caloric value is concerned it makes little difference what sugar we use.

It has also been shown that there is a marked difference in these sugars as far as the amount of energy needed to digest them, the rate of their assimilation and in their fermentability. I will quote Chapin[8] on the assimilation of carbohydrates. "No matter what form of carbohydrate is taken if it can be digested it is ultimately changed into dextrose before utilization, and carried to the liver where it is converted into insoluble glycogen and stored for future use. If the absorption of dextrose or other carbohydrate is too rapid, the liver cannot convert it into glycogen as fast as it is presented and the excess passes into the urine with resulting alimentary glycosuria, a small amount of glycogen is found in all the cellular tissues and in the muscles, even in embryos.

If there is a demand for energy, as when a muscle contracts or the heart beats, the glycogen in the tissues or muscles is converted into dextrine, maltose, and dextrose successively; the carbon of the dextrose is then oxidized and energy is liberated, heat being produced at the same times. The CO_2 produced is excreted by the lungs, and the heat passes off by radiation or is converted into latent heat by the evaporation of perspiration, depending on the temperature of the air."

Chapin also shows that maltose is completely changed into dextrose by the chemical addition of water and is immediately available.

Cane sugar is converted partly into dextrose and partly into levulose. This levulose is converted into dextrose by the enzymes of the blood.

Milk sugar is converted partly into dextrose and partly into galactose. This galactose requires further change before it can be assimilated. The net energy from these different sugars is largest, first from maltose, second from cane sugar, thirdly from milk sugar. From the foregoing we can readily see that an infant can assimilate the material needed for a definite amount of energy from maltose or a mixture of maltose and dextrose with less work on his part.

Leopold[9] shows good results with dextrine and maltose.

Starches.—Many physicians object to using cereal gruels for normal infants especially during the early weeks of life on the ground that the digestive tract is incapable of digesting starch foods.

Holt says that in infants of four months or over, starch might be given at times with advantage. There is wide difference of opinion upon this point. Recently considerable light has been thrown upon this by the investigations of Dr. Alfred F. Hess[7] who has by the use of the duodenal catheter aspirated fluid from the duodenum of infants varying in age from a few hours to one year, some normal, some sick, this fluid was analyzed for amylase—lipase and trypsin.

Some of these infants were examined before they were put to the breast. These ferments were scanty during the first week but there was a gradual increase in the quantity of pancreatic juice and a marked increase in its amolytic power; this adds weight to the ideas long ago expressed by Jacobi and Heubner that foods containing starches can be utilized by an infant in the first month of life. The use of carbohydrates may at times be of value by their influence on the intestinal flora as pointed out by Rotch and Kendall.[8]

Koplik says some of his most successful cases of infant feedings are those of new born infants whose percentage mixture contained as a basis a thin barley gruel.

We can now obtain standardized flours for making gruels, so we may know what per cent. of carbohydrates we are adding to our mixture when using these gruels as a diluent. Furthermore if we especially wish to increase the proteid content we may do so by using the legumen flours.

Just now many pediatrists are using the percentage method of feeding while others are using whole milk dilutions.

Some of these men reckon the amount of food for a given infant in calories only, others depend upon the percentage method in computation of the infant's needs, others use these in combination. My plan is to use a combination of the two methods, i. e., when I am using a percentage mixture or a whole milk mixture I also reckon the calories given in the 24 hours feeding to be sure I am giving sufficient calories to obtain proper growth. But most important of all is to reckon the amount of proteid the infant is getting, as I have said before an infant needs a liberal and fairly definite amount of proteid to develop properly.

Before finishing my paper I would especially urge you to give all infants the benefit of breast milk, their natural food when possible, partially at least. Do not put an infant on artificial food at once without due consideration of the infant's best welfare. I would like to ask these questions: Are we as physicians responsible for many infants being given food other than breast milk, when with a little tact and patience the infant could obtain its sustenance at least partially from the mother's breast? Are we responsible for the enormous quantities of prepared foods used in our midst?

I hardly think it will be necessary for me to answer these but hope each man will think seriously of them.

Dr. X. McClanahan[9] reports a series of 400 mothers who were feeding their infants artificially. To the question: Did your physician advise mixed feeding, not more than thirteen gave an affirmative answer. To the question: "Did your physician examine the breast milk before advising you to wean the infant?" the answer was negative in all but three cases.

It would seem evident that we must have an understanding of the different methods of feeding and that we should adapt the food to the infant in hand.

In other words the success of any line of feeding depends largely if not entirely on the manner of its application.

Stools.—An important factor in our feeding cases is the examination of the infant's stools. This is of much value and gives us a key to the digestion tract of the infant. Do not, as is frequently done, leave this detail to the mother or nurse.

I have had very satisfactory results with the complemental and supplemental feedings. At the present time I have under my care two infants being given supplemental feedings and four on complemental feedings. They are all doing well and gaining in weight, the mothers being relieved from over nursing are feeling better and the breast secretion in each case is much improved so that occasionally the artificial food is not necessary. These infants were previously either losing or continuing a stationary weight.

1. L. Emmett Holt and P. A. Levene. *Am. Jour. Ch. Dis.*, Oct., 1912.
2. H. K. L. Shaw. *Jour. A. M. A.*, 1912, p. 1880.
3. Wile, I. S. *Jour. A. M. A.*, 1912, p. 775.
4. Grulee, C. G. Book, Infant Feeding.
5. Chapin, H. D. *Jour. A. M. A.*, p. 2221, 1912.
6. Leopold, J. S. *Archives of Pediatrics*, Oct., 1911.
7. Hess, Alfres F. *Amer. Jour. Ch. Dis.*, Oct., 1912.
8. Rotch, T. M. and Kendall, A. I. *Amer. Jour. Ch. Dis.*, July, 1911.
9. McCalahan. *Jour. A. M. A.*, Nov. 23, 1912.

Why do not more "regulars" use bryonia? The eclectics swear by it in inflammatory conditions of the chest (pneumonia, bronchitis, pleurisy, etc.), especially when accompanied by pain.

Translucency in a scrotal swelling indicates, of course, the presence of hydrocele fluid. But if the shadow of the testicle within is unduly large the hydrocele is only a complication of some other condition, e. g., neoplasm of the testis.—*Am. Jour. of Surg.*

THE DOCTOR IN COURT.

BY

JOHN J. A. O'REILLY, M. D.,

Of the New York Bar.

III. His Knowledge.

The term "medical expert" is a purely arbitrary appellation—not a collegiate or official designation, although there are some misguided souls among us who would have the state designate the medical experts who may be used in our courts, unmindful of the fact that by the operation of practical politics such state-designated expert would come into court clothed with the dignity of official endorsement, whereas he might be a better vote-getter than diagnostician, a better campaign orator than reasoner, and a better "good fellow" than student and worker in the field of medicine. But for the practical purposes of the law any one who has completed a course of medicine and has practiced his profession for several years may be—and frequently is— as competent to express an opinion on a medical issue in a legal case as the most successful *professional* expert-witness who ever clarified the atmosphere (or confused the issues) in a medico-legal case. For the family doctor who brings his first baby into the world and tends that child through the slight disorders of digestion, the bumps and falls and the diseases common to childhood; who sees the development of mentality as clearly as he sees the eruption of the teeth and who is called upon to watch the youngster, at the age of seven, through serious illness following an injury only to see him emerge apparently well and in a short time manifest evidence of epilepsy is in far better position to tell a judge and jury that this epilepsy is traumatic in origin, than

would be an alienist of three-times seven years experience whose learned disquisition on the subject of a latent idiopathic epilepsy lighted into activity by the shock of fear, might look well on the record but does not affect the decision of the jury in any way. While the family doctor is the best possible witness of fact (and the best witness of opinion as it affects the particular case) he should approach the responsibility of testifying as an expert upon the general phase of a medical issue with all the earnestness and intensity that he would devote to the care of his most difficult case; he must establish his judgment as the stem of a "Y" which receives, assimilates, co-ordinates, analyzes, synthesizes and finally selects the essential facts in recollection which come to it from the arms of the "Y" representing his reading and his experience, and blend those facts into an opinion on the merits of the medical issue. He must understand and keep clearly before him that while there may be "a preponderance of evidence" in the experience of the writers of books that the *positive* of a medical proposition is true, and much in his own experience to support the positive, nevertheless if his judgment on the whole question is in favor of the *negative* he should let his judgment govern and in the expression of opinion be prepared to support it by reason; he is not bound by the opinion of the writer of a standard work on medicine and if the opposing counsel ask him if he recognizes this work or that as an authority he may say yes and still disagree with the author's judgment on a specific medical proposition without losing the respect of a court or jury and without doing violence to the cause in which he is testifying. Far too often the doctor on the witness stand feels that it is incumbent upon him to subscribe to the recognized authors and when the opposing counsel quotes from such author a statement which is at variance with the opinion based on his own judgment the doctor has a right to disagree with that particular statement just as he may enter into an argument and disagree with his best friend upon some specific point, although generally, they may be in the fullest sympathy; for if the law were concerned with the consensus of written opinion upon a medical fact it might very properly take its legal-medicine from a digest or encyclopedia, as it takes its medical-law from the reported cases, under the doctrine of *"stare decisis"* or standing by the decisions. The law, the lawyers and the litigants want and are entitled to have the witness' own judgment on the merits of the medical facts in issue and, since the rules of evidence provide that testimony to be admissible must be competent, material and relevant—and since this test of "competency" applies to the individual who testifies as well as to the subject matter of the testimony, it is obvious that however "competent" the family doctor may be to testify to an objective fact (lay or medical) and to express a (subjective) opinion upon that medical fact in its relation of, or relevancy to, the particular case referred to above, by way of example—and however material the medical fact may be to the cause in issue, the fact that he has made no special study of the particular branch of medicine which embraces that medical fact would make his "competency" to answer a hypothetical question based on general facts rather doubtful, and, while there is no rule which would exclude him from the expression of an opinion or answering a hypothetical

question, the counsel is entitled to examine the doctor as to his capacity, ability and competency to render an opinion which would warrant the jury in attaching any probative force to it; so if the doctor would leave the narrow lanes of medical fact and take to the high-road of medical opinion he must be prepared to show that his education, as represented by reading and experience, has been such as to warrant his own or another's confidence in his judgment; this does not mean that the doctor should become a "book-man" for there is no more vicious type of medical witness than the man who reads much, has a retentive memory, a good recollection and is able to glibly rattle off what this, that and the other author says in support of his theory, and a good "forgettery" to ignore the things which the authors say against his theory, and an attitude of mind which follows a majority opinion and subordinates the promptings of his own judgment to that majority; his marvellous memory and easy manner on the stand may impress a jury of ignorant men and may even win his case, while Justice weeps beneath the bandage, but the average juryman will recognize the man of straw and express his contempt for him by his verdict; on the other hand a doctor should steer clear of the practice of reciting all the hospital and institutional connections which he has, or ever has had, for the lawyer has an uncomfortable habit of dividing the number of days in the year, month and week by the number of institutions with which a witness claims to have a professional connection and demonstrating to the jury the physical impossibility of the medical witness attending to or deriving any experience from many of those connections and the judge and jury are quick to recognize the distinction between quantity and quality in medical experience. But if the doctor has kept abreast of the times in his profession and in the consideration of the medical phase of a legal case, is at pains to read the special literature on that subject and to study the experience of others with greater opportunities than he and then submit it all to the judgment of his trained medical mind, keeping the elements of medicine constantly before him and guarding himself to the best of his ability against partisanship and the exercise of the personal equation, which is the father of partisanship, he will be perfectly competent to express a man's opinion on facts, of which his training gives him the right to judge, and the jury will take his testimony in the spirit in which it is given, and its measure of value will grow in exact proportion as the jurymen find him to be sincere and honest and conservative and disposed to deal fairly with the litigants, whose arbiter he is by force of circumstances and by the obligations of his sacred profession; the wave of counsel's bitterness and sarcasm may beat against him as it will but, having a straight story to tell and an honest opinion to offer, he will remain unmoved during the ordeal and will descend from the witness stand the respected of men, the beloved of justice and an exemplar of professional dignity among his kind.

IV. His Analysis.

It is strange how sensitive many medical witnesses are to the word theory; they seem to feel that its incorporation in a question on cross-examination is an aspersion on their honor and they are apt to rebuke the lawyer by an indignant "I do not theorize, I am giving you conclusions based on facts"; now to make a conclusion

on facts without the interposition of a process of reasoning, makes it essential that the facts shall be axiomatic, *per se,* and that they are what they are and therefore independent of man's reason. Let us understand at the outset that the analysis of any proposition or situation, be it medical or lay, begins with a theory, or a thinking, or a thought about a thing which is of no more value than the smoke from a cigar until by an operation of the mind it is "reasoned" into a conclusion which thereupon manifests itself as an opinion or an act. It is only when the still, small voice of conscience is muffled and reason is made subordinate to theory and the theory itself moulded into a conclusion that we see medical expert testimony at its worst; we are all familiar with the apparently clean cut reasoning of the paranoiac who takes inconsequential facts and phenomena and constructs from them a conclusion which would be like war dispatches "important if true"; we know that his reason is subordinate to his disorganized "percept," or thought, or theory and we pity him; but what shall we say of the one who, being blessed with reason and with special training along medical lines, prostitutes them both—not in mere conversation on the street but upon the witness stand after he has been sworn; we can not pity him, we are not his judges to condemn, but as critics of him and lovers of our profession we may let his behaviour be our danger signal to safeguard us from like conduct when circumstances make it necessary to direct our mentality to the consideration of a medico-legal case.

The very language of the hypothetical question invites us to "assume this or that fact or phenomenon to be true"* * * asks us to think over the proposition, to theorize upon it and, having thought, to apply to the fact or facts the powers of our reason to the end that we may reach a conclusion which will "shut or complete the chain of thought" (to take the derivation of the word) and in the light of our best judgment, based on the knowledge born of study and experience to express an opinion upon the merits of the case at bar. It is a graceful and profound tribute to a medical witness and he should appreciate it and his acknowledgement should take the form of an answer which will manifest the best that is in him of mind and heart and conscience. Let us apply this; a man dies under circumstances which leads his neighbor to believe that he has been poisoned by another; the body is autopsied and the viscera submitted to a physician for chemical analysis; the ante-mortem clinical history shows a picture of violent gastro-enteritis and the surface of the intestinal mucous membrane is strongly suggestive of the presence of arsenic compounds; you see we are "thinking or theorizing" about the cause of death and the personal equation has let down the bars so that the opinion or theory of another that poisoning is present has shaped our thoughts and has given us a starting point for our investigation and that starting point is the metallic poisons; conscience warns us that we must go slow and repair the rent in our scientific armor since this color picture may be only a modification of a meal of spinach; in the application of our chemical and microscopical tests we must reinforce our reason with our conscience lest we be again led astray at a crucial point in our investigation and commit ourselves to a diagnosis of poisoning by arsenic or some other metallic substance; thus far the suggestion produced by the color picture has done no

harm but has given us a warrantable starting point for investigation and when by careful analysis and conscientious reasoning we arrive at the conclusion that here is not a case of poisoning, as in the case cited in the discussion of the personality of the doctor, our function as medical "judge" at the autopsy table or in the laboratory is at an end and we become a medical "jury," bound by the provisions of the same basic law as the jurymen in court—that an individual (or a cause of death) must be held to be innocent until proven guilty and we render a verdict of "no poison" to the prosecuting officers and return the body and its parts to Mother Earth for rest. If, however, our analysis should reveal a criminal cause for death and our conscience and our judgment tells us that we have not permitted ourselves to be swayed by any unworthy motive we surrender the case to the law to deal with the criminal as the law provides and must hold ourselves ready, as an instrument of the law to submit our conclusions and the theory and reasoning out of which they grew to the careful scrutiny of judge and jury, and the counsel for the defendant whose duty it is to probe and probe deeply for any defect in our knowledge or intent, to the end that justice may be done to the individual as well as to society. If our function be that of medical adviser to the defendant and his counsel it is clearly our duty to train the lawyer for the probing process and when we take the witness stand no false idea of professional ethics should influence us in protecting the feelings or reputation of the medical witnesses for the prosecution if in our honest judgment his analysis be faulty or there be evidence to our medical minds that his reasoning is unsound or his theory unfounded, or that he has permitted his personal equation to disturb the relation between theory, reasoning and conclusion. The state does not want the life of any man; it must prosecute crime for the better protection of society and it must use the instruments which are at its hand and it is our fault as individual physicians and as bodies of medical men that the general public as well as judges and juries have grown to look upon the medical expert with suspicion; when the physician testifies to the medical absurdities cited in the article on the "Personality of the Doctor in Court"; when we see the lunacy experts for the prosecution clinging tenaciously to the "legal" definition of insanity as the basis for their reasoning that the prisoner is sane and the lunacy experts for the defense salving their consciences with a medical definition of insanity and neither making the slightest attempt to reconcile the two, but each set girding themselves for a battle of technicalities, we find it hard to blame the public for the contemptuous shrug of the shoulder when the perpetrator of some foul crime submits through his counsel the claim that when he fired a shot which ended a life he was the victim of an uncontrollable impulse, which no amount of reasoning can show to be part of the sacrifice which he made to purchase the "gun" or of the care in loading that gun, or the deliberation in drawing that gun and aiming it at his victim. And it is not always the high-priced expert of great prominence who ignores the obligation of his order, the common practice of certifying to illness which led an employer to say to his employee who offered to produce a certificate, "never mind, I can get all I want for a quarter apiece" is evidential of similar ethical laxity in the humbler channels of

the profession and it is not at all uncommon to have the lesser lights of the medico-legal world out—ananias Ananias in the description of the severity and degree of permanency of the injuries alleged by the plaintiff when he is retained by him, or in minimizing to the degree of absurdity these same injuries when the defendant is his employer. The defect is serious and it is personal; its correction does not lie with man made laws restricting the fee of the medical witness, it rests with the individual and his attitude to moral laws which make for self-respect and for the preservation of dignity of a profession second in sanctity only to the ministry. We can not close our eyes to the fault; we must hold the mirror up to ourselves and others and see ourselves as others see us and the doctor in court will come into his own—the respect and confidence of his fellow men, than which nothing is more valuable or more to be desired.

V. His Pitfalls.

We began our series with a discussion of the personality of the doctor in court and it would seem that we should close with those defects in personality which are readily recognized by the bench and bar and the general public and which are responsible in large measure for the evident contempt in which medical expert testimony has come to be held in our courts, so that, recognizing them ourselves we may bend our energies to their correction and rehabilitate, in so far as we individually can, the profession of medicine in that particular branch.

The antithesis of sincerity is the manifest dishonesty which prompts a medical witness to adapt his opinion and apply his reasoning to fit the requirements of his employer and to make the measure of his interest the size of the fee. It hardly seems possible that any man would so basely prostitute his calling, yet we find, frequently, medical witnesses testifying to conclusions utterly at variance with the established laws of physics and medicine and our knowledge of their opportunities for study and experience make it perfectly patent that the conclusions are incompatible with the sound, unbiased reasoning of which these men are capable, and we are able to judge (in so far as one can from appearances) that the litigant is unable to pay the fees of the witness and that his fees must in the nature of things be contingent upon the success of the action in which his testimony is essentially vital. In no feature of expert testimony is this defect more glaring than in insanity proceedings; the classifications of insanity are so many and so unnecessarily complicated that it is an easy matter for an astute physician to find one or another of the types which contains sufficient ground for argument for his side of the case and, unfortunately, he is reasonably sure that the lawyer who is to cross-examine him is unable to understand wherein his argument limps and wherein active dishonesty is dominating the doctor's attitude to the case and unless the judge is more learned than the counsel and interjects a question which puts the doctor on the defensive, or there is a juryman who possesses a high intuitive faculty there may be a miscarriage of justice the evil influence of which, upon the profession of medicine, is like a stone cast into a pond, the impact of which is felt round the world.

The dignity of the medical witness which entitles him to the respect of judge and jury implies a pride in his profession and in the knowledge and experience and distinction

which he has acquired in that profession, and with that kind of pride I have no quarrel for it is laudable in the extreme; but when one instead of possessing pride is possessed by pride his mental attitude is one of conceit and in the manifestation of this kind of pride the medical witness not only sacrifices his dignity and the dignity of his order but he becomes a menace to the cause of justice; he deliberately lets down the bars which keep his personal equation in check and permits exaggeration to take the place of truth; he "conceives" that to admit a lack of knowledge in one particular will reflect upon his standing and if the lawyer be incapable of exposing this conceit his arrogance will prompt him to greater and greater distortion of the truth until and unless his human nature insinuates a distinct note of improbability into his theory and the whole structure comes tumbling about his ears, covering him with confusion and his entire order with disgrace.

"The best of men make mistakes, even I do," said Gladstone, and when a medical witness finds himself in error and acknowledges it judges, jury and laymen are quick to recognize that his pride in his honor is too great to permit him to do an injustice to his fellow man and, far from losing caste, he becomes the exemplar of his kind and his opinion is received with profound respect, but persistence in error stamps a man a moral coward and socially vicious and when that man is a physician the opprobrium should be the greater because of the exalted character of his calling and because the very nature of the testimony which he is called upon to give is an essential factor in the determination of the life, liberty or property of his fellow man and the welfare of the state.

The democracy of the doctor carries with it the obligation to be impartial and to treat all men with equal favor before the tribunal of his special knowledge and his conscience; merely because he has been retained by the prosecuting officer of a community and is anxious that the favors should continue should not blind him to his obligation to a defendant to safeguard his interests under the special circumstance which makes the physician's examination or analysis more distinctly one-sided than even a grand jury investigation, for a grand jury investigation is a matter of record and under certain circumstances it may be inquired into and the record exposed while the doctor is alone with his conscience in the investigation of the medical phase of a criminal case and since the law expressly says that where a phenomenon or fact is capable of two interpretations, one compatible with innocence and the other with guilt, a defendant is entitled to the more favorable interpretation, it is the absolute duty of the physician to eliminate a natural explanation of a fact before he commits himself to the diagnosis of a criminal agency, but if his personal equation has led him into error, he should be quick to recognize that error and eager to rectify it; the error may have been of the mind, not the heart, and in the course of his investigation or a subsequent trial the testimony develops a situation which makes his findings incompatible with the guilt of an accused, neither the price which he expects to receive for his services, nor his pride in his ability or standing, nor prejudice in favor of his employer, the state, should delay for an instant his demand to be again heard as a witness that he may reconcile the conflict of theories; neither judge, nor counsel may deny him

the right to be heard and to make the situation clear to the minds of the jury that they may be in position to pass judgment on the facts, which is their province and theirs alone and, while his action may for the moment embarass his employer or even result in an acquittal, he must remember that society has held, does hold and please God! always will hold that it is better that a hundred guilty men escape than that one innocent should perish. After the sense of disappointment has passed the employer of that honest medical witness will hold him in greater regard than ever and his reputation among men will be exalted in high degree and after all is said and done the thing which makes for peace and contentment in this world is the esteem in which one is held by his feilows and the sense of happiness which belongs to him who has tried his best to fulfil his obligations to God, his country and his neighbor.

Let us, then, as members of this sacred profession of ours, seek to develop a personality which will win the respectful attention of the people and the courts; let us try to realize and fulfil our duty to judges, juries and parties as well as to the state; let us by every means possible amplify our knowledge and experience and use these instruments honestly and fearlessly in our analysis of a medico-legal proposition and let us at all times be on the watch for the danger signs which beset our own path. Finally, let no unworthy interpretation of a "code of ethics" prevent our alliance with justice in an effort to restore to our profession the respect and dignity which belongs to it in this highly important branch of its application, the giving of expert medical testimony.

[This is the second article of a special series on "The Doctor in Court."]

CELLS FROM THE URINIFEROUS TUBULES AND THEIR RELATION TO DIAGNOSTIC AND PROGNOSTIC URANALYSES.

BY

B. G. R. WILLIAMS, M. D.,

Paris, Ill.

The physiological importance of the renal cell, forming as it does the ultimate unit of the secreting parenchyma, must be great indeed. And yet upon reviewing the literature, one must be struck with the lack of emphasis placed upon its presence in urinary sediments.

When man passes the age of forty, we would expect to find in his urine an occasional hyalin cast or perhaps now and then a trace of albumin, but upon these alone we are scarcely prepared to decide that a nephrosis is present. Strangely enough the diagnostician talks albumin and casts and rarely mentions the possibility of the presence of cells from the uriniferous tubules when but a moment's reflection would impress upon him the fact that in any quantity, free or in casts they must be considered as proof of actual nephric injury, and that disease of the parenchyma is undoubted. They must be regarded, according to Rieder, as infallible indication of desquamation of the renal epithelium.

ORIGIN OF THE CELLS.

Claim has been made that only such renal epithelium as comes from the ducts may be identified in the urine, those cells having their origin in the convoluted tubules being so altered by their longer stay in the urine as to render identification highly improbable. This explanation, I find repeated in many of the modern texts, but regard it as wholly unjustified. After

all, the uriniferous tubule is short as compared with the remainder of the tract and in some cases such cells are remarkably well preserved. Furthermore the presence of pigmented renal cells found in bilirubinuria, may be more easily explained by actual injury during secretion than any which might result from contact with the cells further down.

Martin Fischer, assuming all forms of nephritis to be parenchymatous suggests that there is a solution of the cement substance (perhaps referring to the membrana propria), and the cells easily slip off into the lumina of the tubules. If in some of the diseased tubules there is as yet no stagnation of the urine, it is easy to see according to his theory, how perfect secretory cells may be recovered from and identified in the urinary sediment. Other workers, among them myself, are not as yet willing to accept the dictum that all of the nephritides are parenchymatous; though I can scarcely dwell upon the ratiocinative aspects in this paper except to say that some cases of nephritis which we term interstitial, may show near the end of their course, showers of well preserved renal cells even though there is not a simultaneous increase of casts and albumin. The explanation which I prefer to give to this, in absence of proofs to the contrary, is that the pathological changes in the interstitial tissue have almost run their course, active inflammation has practically ceased, but the connective tissue is contracting, and the uninvolved or but partially diseased secretory units though willing to work a bit longer, are mechanically pushed off and float away in the urinary stream.

Therefore the statement ofttimes repeated that renal cells from the secreting portions of the kidney, cannot be identified in the urine, lacks proof.

APPEARANCE OF RENAL CELLS.

The higher power objectives are necessary to identify the renal cell just as the lower powers are best for casts. Centrifugalized specimens are of course, to be preferred unless there are very many cells. These cells may appear singly or in groups, free or in the cast makeup. In severe tubular nephritis, such as I once observed in a child who had swallowed by accident some bichlorid of mercury solution, the entire linings of the tubes may be shed; and though usually collapsed, pass for true casts in the hurried examination.

In certain cases the cell from the uriniferous tubule may be remarkably well preserved; in others by virtue of pathological processes or osmotic influences exerted by the urine, considerable difficulty may attend the recognition. In the former case, it may be degenerated, necrotic or fragmented; in the latter, it may be swollen or shrunken. Indeed it is not always possible to determine whether the changes are due to disease or may be explained by artifacts. Other urinary findings may be suggestive; or in this connection the use of Sudan III may aid inasmuch as in the pathological alterations, there is usually some fatty change and this stain is specific.

The specimens should be examined as quickly as possible after voiding or catheterization. Ureteral catheterization may be of service in questioned or special cases inasmuch as bladder or urethral contaminations are so easily eliminated. The diaphragm is constricted somewhat to gain the best view of the cells. Stained spreads are rarely satis-

factory mainly because artifacts easily result from the concentration of the urine during the drying.

In bilirubinuria these cells are often pigmented, but usually they are highly refractive, presenting a hyalin-like appearance.

In size, the cell from the uriniferous tubule approximates that of the pus cell—approximates, since it may be somewhat larger or even smaller, in some instances more nearly that of the erythrocyte. A cell considerably larger than the pus cell, almost double its size, comes more likely from the renal pelvis or ureter. Discrimination between the renal cell and pus cell should not be difficult. The former is invariably granular; if the latter contain granules, Sudan III will give an orange color and show this granulation to be a fatty alteration. The renal cell is mononuclear, the nucleus being centrally situated; the pus cell is usually polymorphonuclear (a few drops of acetic acid will bring out these nuclear figures) and these nuclei are eccentrically located. The nuclei of the pus cell are irregular while that of the renal cell is globular and clear cut. The renal cell has an epithelial appearance which cannot be simulated by the pus cell, although this appearance can scarcely be described but is evident to any man doing considerable microscopy. The caution in regard to the use of the higher powers should be repeated and emphasized, for I have seen large collections of renal cells mistaken for pus.

DIAGNOSTIC AND PROGNOSTIC SIGNIFICANCE.

I do not like the term, desquamative nephritis especially when based upon the finding of renal cells in the urinary sediment. True these elements in large numbers are characteristic of parenchymatous involvement but for the reasons given above, considerable numbers may often be found in the interstitial nephritides. I recall at least one case, where with large amounts of urine and but little albumin, casts slowly gave way to large numbers of these cells and a contracted kidney was found at necropsy. I might venture that large numbers of cells from the uniferous tubules early in the course of the disease, are suggestive of a parenchymatous involvement but when large numbers suddenly appear late in the course of a nephritis, and especially if these be fairly well preserved except for fatty granules in the cystoplasm, a diagnosis of interstitial involvement need not in consequence be altered.

The appearance of degenerating secretory epithelial cells in parenchymatous nephritis is constant and of itself has no special prognostic meaning. I am convinced that large numbers of cells from the uriniferous tubules in the interstitial case, may be regarded as a finding of grave meaning and is highly suggestive that the kidney is rapidly contracting.

109 E. Court Street.

A testicular enlargement, even though of rapid development, not associated with evident urethritis, not very tender and not following instrumentation, should never be dismissed as due to "a strain." It is in all probability neoplastic, luetic or tuberculous. If the Wassermann reaction is negative, the testicle should be promptly examined by operation!

When a large amount of pus can be aspirated from the ear the suppurative process has extended beyond the tympanum and mastoid operation is indicated.—*Am. Jour. of Surgery.*

THE HIGH-FREQUENCY CURRENT AS A RATIONAL TREATMENT IN TIC DOULOUREUX.[1]

BY

A. C. GEYSER, M. D.,
New York City.

This is one of the most painful affections of the neuralgias. Why neuralgia of all of the branches of the fifth nerve should be as a rule so much worse than neuralgias of the other nerves is difficult of explanation. Again, why neuralgia of inferior branch should be more excruciating to the patient than of the superior branch is equally confusing. One thing remains certain, neuralgia of the fifth nerve is a most painful affection and deserving of especial consideration.

Like all of the neuralgias, the cause is usually vague and therefore the treatment uncertain and usually unsatisfactory. In this, as in all other pathological changes, we must if possible, discover and remove the cause. Sometimes the cause may be found in caries of the teeth, yet in cases where the teeth were really bad, their complete removal was not followed by any change of the painful condition of the nerve.

Both the ear and nose are entitled to especially careful examination and any abnormalities should of course be corrected. Malaria has frequently been cited as a predisposing cause, that this may be so, there is no doubt. Frequently a course of antimalarial treatment removes the neuralgia. Antisyphilitic treatment is often indicated, but should not be resorted to unless there is present a clear indication for the same.

Disease of the cranial bones and the periosteum must be taken into consideration. There may still be mentioned a number of other causes, but they are of minor importance. The tic douloureux that we wish to especially consider is that form known as "idiopathic." That statement simply means that we do not know the cause of the disease. If the cause then cannot be discovered or removed, we must turn to the pathological changes which have taken place, and try by such means or agents at our command to either arrest further changes or if possible cause a more or less return to the normal to take place.

The fifth nerve is a mixed nerve, but the sensory fibres predominate over the motor. These fibres (peripheral), leave the Gasserian ganglion as three main trunks, the superior or ophthalmic, supplying the orbit; the middle or superior maxillary supplying the lower lid, nose, upper teeth, uvula, tonsil, nasopharynx, middle ear, and lower part of nasal cavity.

The inferior or maxillary supplies the temporal region, the external ear and the lower teeth, lip and chin.

From this anatomical distribution alone we are not at all surprised that so many external influences may affect the fifth nerve, especially through the sympathetic ganglion. We also saw that the sensory fibres greatly outnumber the motor fibres, so that again we are not surprised that whatever manifestations do take place they must of necessity be sensory, either a hyperesthesia or an anesthesia.

Eyestrain has been known to be the only cause for a general epilepsy, for when proper glasses were worn the epilepsy ceased. It is therefore easy to understand that simply eyestrain or an infection or trauma of any kind might provoke an attack of neuralgia of the superior branch of the fifth nerve. Still more simple can

[1] Read at the International Extension Course in Nervous and Mental Diseases, Fordham University Medical School, Sept. 24, 1912.

we in a like manner account for this affection in the middle and inferior branch of the fifth. The nasal cavity, the tonsils, the pharynx, the upper and lower teeth, the external and internal regions of the ear certainly offer opportunity for infection, trauma, etc., which must call forth reflex manifestations through the ganglion of the sympathetic nervous system.

There remains another point of interest to be considered. Whenever and wherever the sympathetic nervous system or one of its ganglia become involved either physiologically or pathologically, we are sure to have some manifestation of a changed or deranged vasomotor supply. This disease, tic douloureux, not only shows changes in the vasomotor but these changes are so pronounced that frequently they are associated with herpes in the course of this nerve. A removed Gasserian ganglion during the course of this disease usually shows some pathological changes in its cell structure. As these cells cannot be followed to their termination, it is of course only problematical as to their true significance, yet these changes are present and must mean something. Not only have these vasomotor changes, resulting in herpes, been found along the course of the nerve distribution, but arteriosclerosis is commonly found in and around the immediate vicinity of the Gasserian ganglion itself.

From the foregoing we are obliged to deduce the following important facts:

1st: The fifth nerve in all of its three divisions is composed principally of sensory fibres.

2nd: These sensory fibres supply those parts of the head most likely to suffer from all sort of exposures such as mechanical violence, chemical irritability, such as the inhalation of gases and noxious vapors and bacterial invasion of the nose and throat.

3d: All of the fibres passing directly through the sympathetic ganglion are more likely to be influenced by reflexes.

4th: These reflexes assume the form of vasomotor changes not only in the region which this nerve supplies, but in the ganglion itself and without doubt in each of the individual cells composing the nerve fibres themselves.

The first condition accounts for the hypersensibility of this nerve as compared with others under similar circumstances.

The second condition on account of the reflex acts emanating from the eyes, nose, mouth, ears and pharynx, explains the persistency and obstinacy of this affection to the usual routine treatment.

The third condition makes it quite clear why this nerve should respond so fiercely to what may appear to us as insignificant or even undiscoverable causes.

The fourth condition is of course, from anatomical distribution as well as the physiological function of this nerve, very clear. The vasomotor changes which are necessary consequences must keep up the condition once started. The very moment that vasomotor changes occur either in the ganglion, this nerve or the parts supplied by this nerve, impulses are received in the cells of the Gasserian ganglion and reflex acts set up in the entire neighborhood.

It is the last or fourth condition that leads us to think that when we fail to get relief by removing what we consider the cause of the pain, we are not dealing with the cause but rather with a consequence. Supposing we have a given case of tic douloureux, make a most careful examination and find nothing but some, one or more, de-

cayed teeth. We would naturally come to the conclusion that these decayed teeth might be the cause of the trouble, when in reality, because of the vasomotor changes having been present for some time, these teeth suffered nutritional changes, hence their breakdown. We can, therefore, appreciate that while the removal of these teeth did not harm, yet they were more sinned against, than sinning. An infected hypertrophied tonsil might be the only pathological condition discoverable, the extirpation of the same will do no harm but may utterly fail to give the relief sought for, again because the tonsil had suffered nutritional changes because of the prior involvement of the Gasserian ganglion or some of the nerve fibres. Viewing this disease from this point of view it certainly furnishes food for serious thoughts. That our therapeutic measures have not been successful requires no reiteration here. The complete removal of the Gasserian ganglion has not only failed to afford relief but on the contrary has caused changes in the eye, nose, mouth, ears and pharynx that resulted in permanent disability while the pain frequently was unabated after a short period of repose. Section of the nerve has given relief from three to six months when the pain returned with its former severity. For a time it was thought that the injection of alcohol into the nerve substance would be able to furnish more lasting relief, but this has been shown to be a doubtful procedure.

In fact all those cases that have been relieved by such procedures as surgical or medical intervention should not be regarded as true tic douloureux, at least not for the purpose of this article. The phase of the disease that we wish to particularly take into consideration here is that where the vasomotor changes preceded any and all pathological changes discoverable. In other words just those cases where nothing seems to give relief to the suffering patient.

If we would have such an agent, it must of necessity be one that could and would in a great measure effect the vasomotor changes and practically nothing else. Have we such an agent?

Not until D'Arsonval introduced us to the high-frequency current did we possess such an agent. The high-frequency current from its physiological manifestations at once proves itself to be the current of all electrical currents suited for this formidable disease. The physiological effects of the high-frequency current are due to three principal reasons.

Firstly: the enormously high-frequency or alternations of the current.

Secondly: the heat developed as a result of arrested motion.

Thirdly: the all important fact that this heat can be localized as deeply or as superficially as the exingency of the case may require.

Fourthly: when this high-frequency current is passed through living tissue, there does not ensue any chemical change or electrolysis, on the contrary, the heat developed within such tissues simply causes a physiological vasomotor effect or more properly speaking a physiological inflammatory process.

We enumerated four principal conditions associated with tic douloureux, now we find four conditions of the high-frequency current most essential as a therapeutic measure in this disease.

The enormously high rate of oscillations, perhaps millions per second, causes this current to differ from all others in the fact that the passage of this current cannot be

felt through the living tissues. There is not a single sensory nerve within the human body so constituted as to be able to respond with any kind of a sensation to such rapid vibrations. The nerves of the ear have a range from 18-40,000, beyond this there is no response. The human eye responds to vibrations from 500 trillion giving us the red rays to 750 trillion for the violet rays. The nerve cells of the ear and eye being organs of special sense are able to respond and take cognizance of such high rates of vibration, but as has been stated the sensory nerves are absolutely incapable of interpreting the possible sensations or feelings that a high-frequency current might be able to produce.

The fifth nerve being principally composed of sensory nerves is not and cannot be irritated by the passage of the high-frequency current. Yet upon the other hand, when this nerve is in a painful state it certainly vibrates and these cellular vibrations are interpreted as painful sensation in the sensorium. When then another rate of vibrations is superimposed upon such a vibrating nerve, and this rate of vibration kept up for a sufficiently long time, it will interfere with and change that particular rate and so stop the painful sensations at least for the time being. The pain that we are considering is not present de novo, there is some reason for its persistence. Our conclusion was that it was due to vasomotor changes either in the nerve cells, their various ganglia or the surrounding tissue. We also saw that the second principal effect of the high-frequency current was through its arrested motion causing to be formed within such tissue a large amount of heat. A local increase of five degrees is very quickly attained in almost any tissue of the body. Such an increase in temperature is of necessity accompanied with vasomotor changes. We have the usual dilation, the hyperemia and the consequent nutritional changes. This is again a clear indication for the use of the high-frequency current in this affection. There is no other agent or means known to us at this time, that is capable of increasing the temperature of the tissues below the skin to any marked degree without injury to the overlying skin. Beyond a slight reddening and more or less increase in the local perspiration there is absolutely no effect. But the vasomotor changes, the real cause of the pain, are principally influenced.

The third important point was that this heating effect can be applied as deeply or superficially as the case demands. In tic douloureux the heat must be localized so that all the three nerve branches, their ganglia and the surrounding tissue above and below share in the vasomotor changes due to this increase in the local temperature. It is still somewhat of a mystery that we are able to send this heating effect to any desired depth of any tissue, but the fact remains. By properly adjusting the electrodes the penetrative power and the heat effect is under absolute control.

The fourth reason why this current is the most logical agent indicated is the fact that while we have an enormous energy in the ray of an electric current, we do not have the usual accompaniments, such as electrolysis or chemical changes taking place in the tissues. We simply have the heating effect and the physiological hyperemia and consequent vasomotor changes.

Taking then the four principal conditions of tic douloureux into consideration, at the same time the four special qualifications of the high-frequency current we must admit that from a theoretical point of view at

least it is the most scientific therapeutic agent that could be devised.

The practical results are most gratifying. During the earlier cases treated we had complete relief and recoveries of sixty-five per cent. of the cases.

By properly selecting the suitable cases, wider experience and improved technique, we are now able to promise satisfactory results in eighty per cent. of all cases.

Technique.—We can here kill two birds with one stone. By selecting a case that seems to embody all the salient features, detailing the treatment and the results, we can best appreciate the application of this current.

The case selected occurred in New York City. This patient for the past four years had been a great sufferer from tic douloureux. Some few months ago several attempts had been made to overcome the condition by the alcohol injections into the painful nerve but this had been a complete failure. The patient now was obliged to depend upon morphine for sufficient relief to obtain necessary sleep.

Here then we have the history of a case of tic douloureux all three branches involved, four years' standing. Everything but section of the nerve or removal of the ganglion had been done for this patient without relief.

The patient, Mrs. G., eighty-three years of age, but exceedingly well preserved was in bed, attended by a nurse of more than usual intelligence. I say this because a great deal of the success was due to the intelligent manner in which the nurse was able to handle not only the patient but the application of the current as well.

A Wappler Excell High-Frequency machine was sent to the patient's apartment. The first three treatments were given in the presence of Dr. Vandenburg and the nurse.

After the first treatment, lasting twenty minutes, the patient declared herself free from all pain and slept four hours, awakening to find that she was practically without pain. During the next day the pain returned, yet not with the usual severity, but the patient longed for the treatment. After the second treatment, lasting thirty minutes, there was no sign of pain and the patient slept six hours, something very unusual for her. The third treatment, twenty-four hours later resulted in equally good results; the morphine had been stopped from the first. The nurse was now instructed and given an opportunity to apply the treatment.

The patient was reclining in bed, the sound side of the face resting upon a piece of flexible tin, large enough to cover the entire side of the face, and cut around the edges so as to make it fit smoothly to all parts even extending down onto the neck and as high as the temple. This flexible tin was then connected with a rheophore and attached to one binding post of the Excell machine. The other electrode made also of flexible tin was round, about the size of a silver dollar, and placed in front of the ear upon the painful side, connected with a rheophore and the other binding post. Upon this electrode a small sandbag rests to insure good contact. The spark gap is closed, and the current turned on. Very cautiously the spark gap is now opened and the meter begins to show a reading. Be sure to ascertain from the patient any feeling of discomfort. There must be neither sensation nor muscular twitchings or contractions produced. Whenever the patient complains of such sensations there is improper contact which must be corrected. The meter now reads 800 milliamperes, the

patient thinks that it feels quite warm. From 600 to 1,000 milliamperes is sufficient. This should be maintained for from 15 minutes to one hour or until all signs of pain have ceased. The treatments may be repeated several times during twenty-four hours as the case may require. If the technique is correct no damage will ever result.

This case progressed from day to day until she was seen again four months later simply for information as to taking the instrument to the country with her. This patient had become attached to the instrument and considered it much more desirable than the opiates previously used.

Correct technique, proper instrument, and careful attention to the patient and there is not a single case of tic douloureux that is not amenable to the high-frequency current.

SPECIAL ARTICLES.

THE INTERNATIONAL MEDICAL CONGRESS.[1]

Certain features of the seventeenth International Medical Congress, which after an interval of thirty-two years, again met in London on August 6th, stand vividly out. First, its magnitude and eminence. As to magnitude, it was prophesied in 1881 that probably never again in the lifetime of the youngest then present would its like be seen. Yet that Congress had only some 3,000 members, while at the one that has just closed over 7,400 members had registered at the time of the opening meeting, and two supplements of additions were subsequently published. As to eminence, there was not perhaps present a peer of Pasteur, of Lister, of Huxley, of Virchow, but surely a congress that could bring together such names as those of Ehrlich, Chauffard, Cushing, Abderhalden, Koranyi, Adami, Osler, Mayo, Landongy, Crile, Fernier, Babinski, Widal, Becquerel, Sabouraud, Leishman, Ross and Bruce, Kitasato, Laveran, and many others almost equally familiar, and representatives of 25 different nationalities, may fairly claim to be an eminent gathering.

The gradual disappearance of old prejudices was another remarkable feature of the Congress. At the Congress of 1881 women members of the medical profession were excluded by the decision of the committee. At the present Congress medical women of many nationalities abounded, and many took an active and highly creditable part in the proceedings. A particularly noticeable feature was the absence of all acrimony in the debates, notwithstanding the expression in some cases of irreconcilable differences and the natural vigilance of national jealousies and *amour propre*. Finally, it was recognized that a claim to mystical superiority in the medical profession, not only is not longer tenable, but is inimical to the highest interests of the profession and the public alike, and a disposition was shown, and steps were actually taken for the establishment of a better understanding and a necessary cooperation between the profession and the public.

That the public reciprocates this attitude was evidenced by the action of the daily newspaper press. Nothing perhaps reflects better the pulse of popular sentiment; and the fact that all the leading dailies, and particularly the *Times,* devoted more than a page, not merely to the functions and chief events, such as the addresses, that obviously have a "news" interest, but to reports in considerable detail of the proceedings of many of the sections, indicated a realization that the much maligned "priesthood of medicine" is a priesthood not over the people, but of the people. And great discrimination also was shown in the selection of topics for public dissemination; for while selections were made not only from the departments of public medicine but also from those of individual medicine, they were nearly always of such a nature as to have a direct bearing on the life of the people.

The increasing degree to which the counsels of the medical profession must inevitably influence and mould much of the legislation of the future was also fully recognized by the greatly increased of-

[1] From our Special Correspondent.

ficial recognition of the Congress by the government. The dinner given by the government to some 600 of the official delegates and the more eminent members of the Congress, at which Lord Morley—than whom a better selection could hardly have been made—was the official spokesman of the government, the night before the opening of the Congress, bore the impress almost of an ambassadorial reception in which the government acknowledged the credentials of the envoys from the "International Republic of Medicine." Lord Morley, moreover, in his speech distinctly acknowledged on behalf of the government the principle that national health is an international affair.

It is hardly surprising, therefore, that the Congress should have risen to its responsibility and in following up the assault so vigorously delivered a few weeks ago in the daily press by the leaders of the British profession on the "conspiracy of silence" which has for so long acted as an effective cover for the advance of the venereal peril, should have seized upon the suggestion of Lord Morley. For in adopting the resolution drafted and sent up to it by the combined sections of Dermatology and Syphilography and of Forensic Medicine, calling for the institution of a system of confidential notification of the disease to a sanitary authority and for the systematic provision for the diagnosis and and treatment of all cases of syphilis not otherwise provided for, it addresses its representations to "the governments of all the countries here represented." The significance of this fact can hardly be overestimated. It presages a fuller recognition than has ever hitherto obtained of the principle that the nationalities can no longer shut themselves up in water tight compartments, but that as the concern for the national public health includes the concern for the individual's health, so the several national public healths are inextricably interwoven in the meshes of an international public health, not only in the matter of epidemic disease, but of all conditions in which propagation from one organism to another can occur. It is gratifying to know that the British government at once acknowledged its responsibility and has decided to appoint a royal commission to sift the matter thoroughly.

Another point in which the Congress spoke as one conscious of its authority was a matter in which it was less likely to find itself sure of unwavering governmental support. Governments are notoriously timorous in the face of strong public sentiment, and Lord Morley at the opening dinner referred, apparently in warning, to the "strong volume of energetic feeling and opinion against anything like unrestricted experiments on animals." The Congress, however, conscious of rectitude in its position, and doubtless strengthened therein by the brilliant and masterly exposition of Dr. Harvey Cushing in the address on surgery, adopted by acclamation the resolution sent up to it from certain sections of the Congress, recording "its conviction that experiments on living animals have proved of the utmost service to medicine in the past and are indispensable to its future progress. That, accordingly, while strongly deprecating the infliction of unnecessary pain, it is of opinion alike in the interests of man and of animals, that it is not desirable to restrict competent persons in the performance of such experiments."

The hospitality shown the guests was lavish in the extreme. Besides the sectional dinners there were many other dinners to selected members of the Congress, luncheons, garden parties, soirés and conversaciones, excursions to distant places, visits to hospitals and famous private houses, a masonic meeting by the nine medical lodges of London, and special services at St. Paul's and Westminster (R. C.) Cathedrals and Westminster Abbey. Private hospitality was also profuse, and it was difficult from the multiplicity of engagements to secure the company of a visiting acquaintance unless it had been engaged in advance, for all had their time fully filled up. There can indeed be little doubt that in every respect the Seventeenth International Medical Congress has made a record which it will severely tax the resources of any other community to surpass or even to approach. If any complaint can be formulated at all it is that of an embarras de riches.

DEFECTS IN THE INSANITY LAW OF NEW YORK STATE.

BY

JOHN J. A. O'REILLY, M. D.

The recent escape of Harry K. Thaw from the Matteawan State Hospital for Insane Criminals, and the effort of the State Bar Association of New York to change the code of criminal procedure so that the jury verdict in such cases shall follow the English rule of "guilty, but insane at the time of the commission of the crime" focusses attention on certain glaring defects in the law as applied to the insane, who may be under criminal jurisdiction.

Criminal responsibility can and should only be predicated upon intent, real or implied, and if one be insane in the legal sense and "unable to comprehend the nature and quality of his act and to know that the act is wrong," then to adjudge him "guilty but insane" is to alter the basic law by passing judgment upon the physical act of an individual without regard to the psychological processes which would make that act a wilful wrong upon the State or upon an individual,—and therefore criminal in character. The only value which could attach to such a change in the code of criminal procedure would be to maintain criminal jurisdiction for purposes of extradition in the event of escape, and the cost of such a precaution would be altogether too high for humanity to pay, although it is to be feared that the apathy of the public in matters affecting the unfortunate insane may make possible this change in the law of the state unless the public press in the interests of humanity oppose it.

The State Hospital for Insane Criminals at Matteawan is the logical and legal successor to the first hospital for insane convicts established at Auburn in 1855 as a hospital branch of the prison department (Chap. 456, Laws of 1855, Sec. 1). It was and is under the control and management of the State Prisons Department, and the State Hospital Commission has no clearly defined relation according to the annual report of the State Lunacy Commission 1908 at page 90; it is distinctly a penal institution, primarily designed for insane convicts and later utilized as a place of commitment for those pleading insanity in the commission of a crime and acquitted on those grounds, but compelled, nevertheless, to share the home and the stigma of convicted felons gone mad; and still later, either through careless interpretation of law, abuse of custom or utter disregard of the rights of those whom even savages regard as special objects of awe and care, made to serve as a place of commitment for any person becoming insane against whom a criminal charge has been made, and to whom criminal jurisdiction attaches and from whom is withdrawn the right to prove his innocence because he has had the misfortune to become insane and is unable to advise and consult with counsel. And so intimately is the thought of Matteawan associated with the stigma of criminality and so general is this association of ideas that the editorial page of a newspaper of the first class (*Brooklyn Standard Union*, Aug. 18, 1913) speaking of the escape of Thaw referred to him as "no better than any other of the *vile* inmates."

It would seem, with our vaunted civilization and our claims to broad humanitarianism which gives promise of the "universal brotherhood of man," that some legislative thought and action should be applied to the protection of a man who may be charged with a crime and, according to a fiction of law, is "presumed innocent until proven guilty" and upon the facts may be actually innocent, who has the misfortune to become insane between the date of his indictment and the date of pleading; who has been declared insane by a commission upon whose report a humane judge is disposed to commit that unfortunate to a state hospital for the insane and not the State Hospital for Insane Criminals at Matteawan, and in relation to which commitment a broad minded district attorney interposes no objection; but the insanity law as interpreted by the State Hospital Commission denies this unfortunate admission and retention in any state hospital except Matteawan. Indeed, if a committing judge were to attempt to force the issue by committing such a defendant to "a" state hospital such as Kings Park, the State Hospital Commission would be within its rights if it applied Sec. 122 of the Insanity Law and transferred such insane person to Mat-

teawan and, according to a decision in 138 Appellate Division, page 91 to page 94, the courts of the State of New York are powerless to transfer such insane person from Matteawan to a state hospital for the insane which does not brand its inmates as criminal.

I believe that a man who commits a crime while under the influence of insanity and who so pleads should be adjudged "not guilty" because of that insanity and unless it is possible for his insanity to be sharply defined as an acute condition from which recovery has been complete, he should be confined to Matteawan until the probability of recurrence is set at rest or the permanency of the insanity is determined or his recovery warrants release. But where a man is insane, and has become so after his indictment and his right to trial and exoneration is suspended by reason of his infirmity, he should have the right, in all humanity, to commitment to an institution for the *sick insane,* so that his unfortunate state shall not be permitted to rob him of the presumption of innocence and impose the stigma of criminality on him and his posterity; to accomplish this result the language of Sections 659 and 836 of the Code of Criminal Procedure should be so altered as to make the meaning unequivocal and in consonance with the spirit of humane treatment of the sick insane.

Sections 149 and 150 of the Insanity Law render it obligatory for the superintendents of Dannemora and Matteawan State Hospitals for the Criminal Insane, when the term for which an insane convict was sentenced has expired, to ask a judge of a court of record to cause an examination to be made of the inmate and, if found still insane the court shall grant an order of retention and he shall be so retained; although his term has expired, and if sane the Hospital Commission could release him, the poor unfortunate simply because he continues to be insane must continue to wear the brand of criminality and the Appellate Division in the Second Department frankly says that the courts have no power to transfer a patient or inmate from Matteawan to some other state hospital for the insane.

I believe that the law should be so altered that when, by lapse of time, the convict has satisfied his debt to the state and still continues insane he may be transferred from *the* State Hospital for the Criminal Insane to *a* state hospital for the *sick* insane there to end his days or proceed to recovery without the brand of criminality which attaches to retention in Matteawan.

CORRESPONDENCE.

RATTLESNAKE OIL IN THE TREATMENT OF RHEUMATISM.

BY

HOWARD CRUTCHER, M. D.,

Roswell, N. Mex.

To the Editor of
AMERICAN MEDICINE:

Those benighted residents of Manhattan Island who describe the sun as an orb that rises in Brooklyn and sets in Hoboken have little conception of the boundless possibilities of Southwestern therapeutics. After thirty years in medicine I had about arrived at the conclusion that the only "sure cure" for rheumatism was distilled water and worlds of patience when my hopes were suddenly revived in a most unexpected manner. Through good fortune I met with an intelligent and enterprising Indian, whom I shall call "Cherokee Tom," a descendant of a line of bloodthirsty chiefs. After discussing some matters of historic interest, that grand old topic, rheumatism, came up. Tom assured me, with an impressive gesture, that he was in possession of an infallible specific. Of course, all specifics are "infallible." I was at once profoundly interested, and asked for some particulars. The "specific" proved to be nothing more nor less than rattlesnake oil. No other member of the snake family need apply. I judge that oil from the moccasin or the copperhead would have no more effect than dew drops on the back of a mallard.

Tom assured me that rheumatism is a disease of the nerves, which I must say that I accept as correct pathology, since some personal experience has convinced me that it "gets on the nerves" as few things do in this life.

The method of capturing the reptiles and extracting the oil is a profound secret that has been kept in the family ever since the time that the famous old mariner Christopher Columbus sailed up the Hudson River as far as Albany to get a view of your well-known capitol. The oil is worth its weight in gold, twenty dollars an ounce. I did not inquire as to the method of application, but suppose that a camel's hair brush might serve the purpose very well.

Tom says that the oil is extremely helpful in gout, which is also another disease that is very trying on the nerves. The fact is that for many years past I have made it a rule to refer all of my gouty patients to a neurologist.

I asked Cherokee Tom something about the question of diet and found him to be a man of exceptionally liberal views. Tom said that he was a strong believer in blood rare steak, rib roasts, the blood to follow the knife, mutton steaks, fried chicken, with a generous allowance of pan cakes and maple syrup. I suggested the addition of fried potatoes, to which he assented. Fried pork sausage will occur to some as being a valuable adjuvant, to say the least.

AMERICAN MEDICINE has often thrown out an editorial hint to the effect that its contributors should not be too ready to reject old ideas without being able to suggest better ones. The supply of rattlers is undoubtedly declining, and many believe that the snake will be exterminated. In many parts of the country the dreaded reptile is practically unknown.

As a substitute for rattlesnake oil, I would suggest an old and thoroughly tried remedy, namely, goose grease. It has the advantage over the other "remedy" that it may be taken internally as well as applied externally. I must express my personal preference for the former method of administration. Moreover, the average goose is such a hopeless social outcast that he would probably rather be dead than alive. A well roasted goose with abundant apple sauce, delicious celery, roasted potatoes, and a warm welcome ought to tempt the editor of this journal to visit New Mexico, where, I assure him, every issue of AMERICAN MEDICINE is read from cover to cover at least a dozen times every year.

THE ANNOTATOR.

Medical Inspection in Manila.[1]—The editor thinks no greater benefit has come to the Philippine Islands from the United States' occupation than has been derived from the sanitary service.

Medical school inspection was recently begun in Manila and during the year ending March 29, 1912, examinations were made of 12,320 children.

The benefits of such inspection are about to be extended to the provincial schools also.

Nowhere is this system of medical inspection more useful than in the Philippines. The doctors are numerous enough in Manila but the majority of the poor never consult them, while in many of the provinces the only physician is the district health officer. Among the poor there is great ignorance on sanitary matters and there is also a fatalism which prevents them from making any effort to avoid disease. But the Philippine Islands have an advantage over many other localities from the fact that the powers of the bureau of health are ample and it is able not only to make inspections and recommendations but to administer treatment in the various hospitals and dispensaries which are connected with it.

The teeth of the school children in Manila receive special attention at the free dental clinic which is associated with the dispensary of the Philippine General Hospital.

The importance of these sanitary measures upon the future of the population of the Philippines is enormous.

This is virgin soil and to impress thereupon the fundamental principles of sanitary science is bound to result in a splendid fruition.

There is a great chance for a career for many a young graduate of our medical colleges in these distant colonies.

Heredity and Eugenics in Relation to the Public Health.[2]—C. W. Hargitt finds

[1] *Medical Review of Reviews*, April, 1913.
[2] *Medical Review of Reviews*, April, 1913.

that the active growth and extension of ideals and efforts toward social betterment for the past twenty years indicates a healthy sentiment and one which excites respect.

There are two methods of approaching social problems: (1) the euthenic, including culture and environment; and (2) the eugenic or natural view, or that which lays stress upon the influence of heredity.

We must not ignore the fact that sanitary improvements and surroundings have been taken advantage of chiefly by the sickly and this has led to a diminution in the average robustness of the individual constitution. Furthermore, as Spencer has said, removal of detrimental agencies with survival of the delicate, means additional destructive agencies. In the country at large we have a population of three million who are not only nonproductive but are costing $100,000,000 a year in taxation. The case may be stated in the following propositions:

1. There is a large and constantly increasing body of socially unfit.
2. The burden of taxation for their care has increased in corresponding ratio.
3. The natural propagation of these defectives is not only tolerated but is sometimes legalized and encouraged.
4. The rate of propagation is higher than among the desirable.
5. Are remedial measures possible?

Through the work of Mendel it has become practicable to forecast and control heredity along definite lines and this promises to be of great value in practical eugenics, for heredity in man follows the same general laws as in animals.

In matters relating to progeny a sane and serious purpose should dominate, that its characteristics may sustain those who furnish the types of citizens who best express one's ideals of what national or racial character should be.

The first object of eugenics is to check the birth-rate of the unfit, while its second is the improvement of the race by furthering the productivity of the fit.

However important the various factors may be which constitute a healthy environment they are only accessories of the far more fundamental basis of health which is grounded in ancestral blood and germ plasm.

The Economic Use of Dried Milks.[1]—The entire history of dried milk covers a period of little more than ten years. Its application in infant feeding dates from the year 1905. Pritchard's experience began in April, 1908, when he commenced to use dried milk in the feeding of normal infants attending at his infant consultations in Marylebone.

From the point of view of purity and freedom from bacterial contamination, desiccated milk is superior to ordinary dairy milk. In the first place, a good dried milk can only be prepared from an initially good raw milk. In the second place, after the milk has once been packed in hermetically sealed tins it is liable to no subsequent contamination. Dairy milk, on the other hand, continues to deteriorate from the moment of milking to the moment of consumption. Milk can be desiccated and sealed up within three or four hours after it has left the udder of the cow. Although theoretically, it is possible to produce a germ-free dried milk—as a matter of fact an average sample contains between 4,000 to 10,000 germs per gramme weight—when reconstituted with water the bacterial content amounts to 400 to 1,000 living germs per cubic centimeter as compared with 6,000 to 100,000 in the best samples of dairy milk. A more important feature is that among the germs present there are no tubercle bacilli or other pathogenic varieties. From the point of view of summer diarrhea this is of paramount importance. During the fatal summer of 1911, among all the babies attending Pritchard's clinics fed on dried milk, there were no deaths from diarrhea, and such cases as occurred were of the mildest possible type.

Economic Advantages.—When compared with the cost of dairy milk, reconstituted dried milk has no advantages; the cost of the two varieties are practically the same, *i. e.*, 4d. per quart. There is, however, this to be said in favor of dried milk, that there need be no waste.

CONCLUSIONS.

(1) Different varieties of dried milk have different properties and are suitable for different classes of cases.

[1] By Eric Pritchard, M. A., M. D. Oxon., M. R. C. P., *The Medical Officer*, Aug., 1913.

(2) Dried milks are free from pathogenic germs, and consequently safer than natural milk.

(3) The cost of reconstituted dried milk is the same as dairy milk, but if separated dried milk is used and fortified with a cheap substitute fat (Marylebone cream), the food thus constituted is the cheapest that can be employed and the results are excellent.

(4) Proprietary foods are expensive and do not accurately conform to the standard of breast milk.

(5) To obtain the best results with dried milks they must be modified to the required standard—a standard which differs in the case of different infants. This is easily accomplished by varying the dilution and adding varying proportions of additional fat and sugar.

Another Aspect of Eugenics.[1]—An editorial asks who is to sit in judgment in the matter of safely separating the fit from the unfit.

Who will be responsible for the examiner? The list of weak babies who were apparently unfit physically but developed into strong men is a notable one and includes such names as Calvin, Newton, Heine, Voltaire, Herbert Spencer, Darwin, and Robert Louis Stevenson.

The list of illegitimates also shows a great number of makers of history and rulers of men.

A remarkable example of bad heredity is to be found in Jonathan Edwards whose grandmother, Elizabeth Tuttle, was a beautiful woman with strong will, great mental and physical vigor, but deficient moral sense. She was divorced from her husband for adultery and other immoralities, and her sister and her brother were both murderers.

But Jonathan Edwards owed his great mental qualities to his grandmother rather than to his grandfather, for the latter by a subsequent marriage had six children, none of whom, nor any of their descendants were above mediocrity.

Would it not have been a great eugenic mistake, it is asked, to have deprived the world of Elizabeth Tuttle's germ plasm? Hence desirability and undesirability must be regarded as relative and more or less undefinable terms.

* * * * * *

It is pretty hard to prove that Jonathan derived his great mental power from his erratic grandmother.

Is it not also rather strange to assume that he inherited nothing from her but her good qualities?

Verily the science of eugenics is an interesting one but it still presents many puzzles.

[1] *American Practitioner*, April, 1913.

Industrial Colony for the Tuberculous.[1]—The editor notes the difficulty which meets those who have been discharged from sanatoria with their tuberculosis arrested, when they are compelled to return to the unhealthy environment of a crowded city, and the prompt relapse which so frequently occurs to them.

For such people the great stumbling block has been the lack of suitable occupations under proper conditions.

Years ago Dr. H. M. Biggs urged the formation of an industrial colony for such patients in a locality where the climatic conditions would be favorable, where land was cheap, where sanitary workshops could be erected and where the unemployed hours of the day could be spent out-of-doors.

In such a colony outside sleeping porches would be provided for the patients, their families would be under supervision, their diet would be properly regulated, and the earliest signs of the return of the disease could be noted.

Through the efforts of Dr. Biggs a bill has just been passed and signed authorizing any municipality or corporation which maintains a sanatorium for tuberculosis to establish workshops for the manufacture of such supplies as may be required at that sanatorium or any other department in the municipality.

No workman is to be employed in such a shop, with the exception of the superintendent, unless he is or has been a patient in the sanatorium.

[1] *New York Medical Journal*, April 26, 1913.

This will enable convalescents to live and work under sanitary conditions and at the same time their families can be looked after by the sanatorium authorities.

* * * * * *

This is a splendid step forward for New York state though the idea is not new, at least as to some of its features. In the Adirondacks and in some of the western states many who have recovered from tuberculosis have remained in the region where they have been cured, have found occupation and have transferred their families to their new homes. This or something like it is the only rational solution for the disposal of the convalescents and the cured.

Mine Sanitation.[1]—N. P. Brooks considers his subject under the following headings:

1. Ventilation. This subject has been carefully studied by mining engineers but not by sanitarians. It is thought that insufficient attention is given to the size and conditions of the air ways and their possibilities, from the standpoint of reduction of friction. No regard is paid to humidity, and very little to temperature.

2. Drainage has received very little sanitary attention in general mine engineering.

3. Disposal of excreta is beginning to arouse the interest of sanitarians but has not yet been applied to mining operations.

4. Personal hygiene of the men has received very little attention in the United States and none in Mexico.

5. Lighting has received attention from the study of explosions but none with regard to its effect upon the health of miners.

Reserve work and first aid have been carefully considered in recent years, but an improvement in the sanitary conditions underground will be likely to develop a better and cleaner set of men and improve those who are already working.

With this improvement will come less reckless disregard of life, fewer accidents and recognition and avoidance of dangers. The inculcation of bodily cleanliness will have a favorable effect upon the life of miners outside the pit.

When common sense ideas of health and safety are insisted upon in mining, the same as in mill work, there will be more economical work and better workmanship.

No mine is an agreeable place to those who are unfamiliar with underground work, but any mine can be made as sanitary as the best mill.

Operative risks will decrease as sanitation improves, but mining will always remain a hazardous occupation.

Sewage Disposal of Greater New York.[1]—The editor remarks that the question of sewage disposal in Greater New York ought to be solved immediately and the preparatory work culminated.

The latest report of the commission which was appointed to study the subject reviews four proposed schemes. The first is that of land sewage, that is broad irrigation and intermittent filtration. This is used in Berlin and is said to have given good results.

A farm for such a purpose for New York would have to be so large (it would require an area of nearly fifty square miles) that the physical conditions for perfect operation would not always obtain.

The second scheme includes filtration of sewage through biological filters, as at Barren Island. This would mean the most disagreeable odors from the evaporation of a vast quantity of offensive material, and this with its great cost would make it almost prohibitive.

By the third scheme the sewage is disposed of by chemico-physical methods at various points and the partially purified water turned into the nearest water course.

By the fourth scheme the major portion of the sewage is removed to an island in the Atlantic Ocean four miles from Sandy Hook where it would require the minimum of treatment.

It is said that the cost of either one of these methods will be from $100,000,000 to $200,000,000.

* * * * * *

Whatever the cost, one of these plans or something equally effective will soon be imperatively required.

---

[1] *Monthly Cyclopaedia and Medical Bulletin*, April, 1913.

[1] *New York Medical Journal*, May 3, 1913.

In dealing with problems for so great a community as New York whether subways, sewage disposal or what not, one gets accustomed to large figures and hundreds of millions no longer sound strange or incredible.

Alcohol and Industrial Economics.[1]—Colonel Mans, U. S. A., states that alcohol is the greatest factor for inefficiency in our army, and that its interdiction would reduce the sick rate 50 per cent. It is responsible for nearly all the crimes committed by soldiers, diminishes capacity for work, marching endurance, accuracy in rifle practice, and in officers impairs ability to deal with military problems, command troops and act on court martials and military boards.

These noteworthy facts are being more and more considered by industrial concerns. Railroads also in Europe and America are adopting strict rules concerning the use of alcohol by their employees, not so much on moral grounds as on those which affect human efficiency and industrial economics. Even the moderate use of alcohol has a depreciating influence upon workmen as seen in low grade work, in money losses and in train wrecks.

More and more corporations in general will be sure to insist upon moderate use of alcohol, if used at all, as a pre-requisite to employment. The personal liberty element involved in the right to drink is justifiably assailed when economic, moral and other considerations are dangerously involved, and this is the case with all corporations employing labor which is supposed to be efficient and upon which sane economic and moral considerations depend.

This is a consummation devoutly to be wished. Would that we were nearer such an end; To see the rows of beer pails going to and from the saloons all too frequently, to see the crowds of workingmen lined up at saloon bars in almost any industrial center and, alas, to peep into the homes of so many of our toilers and note the drinking habits of the family, tells us that the drink evil is far from controlled. We need no other statistics, these we have mentioned are all too eloquent. But there is hope, and while sobriety cannot be attained by legislation, it may be by self-interest, and the demands of modern industry, as cited above, may be the solution of the problem which temperance lectures have failed to solve.

[1] *Medical Times*, July, 1913.

The Massachusetts Society for Mental Hygiene and its Suggestions for the Preservation of Mental Health.[1]—Only those who are physically and mentally fit should have children. People who are closely related ought not to marry. The children of the intemperate are often embecile epileptic, and incompetent for the duties of our complex civilization, and the children of defective parents are almost certain to be defective also. Children whose parents have the taint of insanity are likely to have the same taint and to transmit it. The following rules relate to the training of children, of course they are self-evident but it is not a bad plan to be reminded of them.

Mind and body should be kept clean, bad companions avoided, plenty of wholesome food given at regular intervals, the period of sleep should be nine or ten hours and in fresh air, and plenty of play should be combined with useful but not fatiguing occupation. It is most important to train children not to worry, to be obedient, to avoid drugs and stimulants, not to get frightened, and to have a good example from their parents to follow. Seek a good physician's advice early when illness invades the home.

Remember that syphilis causes one-tenth of the admissions to insane hospitals and that the brain diseases which it causes are usually incurable.

Seek competent medical advice on the sexual, ethical, emotional, or mental problems which puzzle you.

Get a little recreation every day and a vacation as often as twice a year.

Keep up your weight and cultivate a charitable disposition.

Many forms of insanity are preventable, many are curable.

Avoid excesses of all kinds and, so far as possible, lead the simple life.

[1] *Medical Times*, July, 1913.

The Sanitary Control of Industry.[1]—M. M. Davis, Jr., reports interesting facts concerning the Board of Sanitary Control in New York City which was appointed two years ago in the interest of the garment working trades.

Of its seven members two are appointed by the manufacturers, two by the trade unions and the public is represented by three.

Its expenses, from $7,000 to $10,000 annually, are shared by the manufacturers and the unions.

This board was the outgrowth of the strike in 1910 of workers in the cloak and suit industry, 95 per cent of whom belong to unions.

The manufacturers controlling 60 per cent of the output, and having the most sanitary establishments are organized in a Manufacturers' Protective Association.

The "protocol of peace" resulted from the strike and also the joint board of sanitary control. This board at once inspected 1,243 shops and two-thirds of them were found defective in fire protection or sanitary conditions. The shops are now inspected twice a year and the board has power to compel manufacturers in the association to make such sanitary improvements as they may direct.

As an illustration changes were suggested in 38 shops and they were promptly made in all but two or three.

The subjects which the board considers are ventilation, overcrowding, uncleanliness, improper toilets, and want of fire protection. The objections are not so much to the fire-proofing of buildings as to their height, their inadequate fire escapes, imperfect fire drills and filling overcrowded workrooms with quantities of inflammable material.

This plan of sanitary control is bound to extend to other industries and has already extended to the dress and waist interests.

The industries with their cupidity and greed have outstripped the means of protection and defense of those who are employed in them.

The terrible slaughters like that in the Asch building and at Binghamton are said to have resulted from carelessness but when will our legislators define in hard and fast terms which cannot be juggled with that carelessness is crime, and that the greater the misery and suffering resulting from it the more condign should be its punishment. Society calls human life important, valuable, and yet what terrible risks industry imposes upon it in a thousand ways.

[1] *Medical Review of Reviews*, July, 1913.

The Issue.[1]—M. P. E. Groszman argues the problem relating to the exceptional child and what should be done with him, and advocates the following measures:

1. An agreement upon a proper classification and terminology.

2. A pedagogical clinic in every school system in which children of difficult mentality or difficult management may be examined by pedagogical and psychological experts in connection with the medical school inspection.

3. A reference of those cases which are unsuitable for maintenance in the public school system to a municipal or state bureau for examination and classification by specially trained experts.

4. A return of the child by this bureau to the school system from which it came, with proper advice as to his condition or a transfer to an institution under proper custodial care.

5. Legislation granting the foregoing and modifying and extending compulsory education laws so as to apply to all children of school age and provide for their training. These laws should also determine the school age limit of a child by resorting to certain physical and mental tests and not by reference to his age. Those who are unable to pass such tests at the extreme school age limit should be placed under public supervision.

6. Provisions in every school system to meet the needs of the exceptionally bright child as well as of the slow child. Special help should be given to retarded children, and special classes and schools with modified and readjusted courses of instruction should be reformed to permit children with particular aptitudes to develop along the line of their strongest powers.

[1] *Medical Review of Reviews*, July, 1913.

7. A revision of general educational methods, standards and organization to make the modern school an expression of modern child psychology.

8. Not only should these differences in aptitude in children be recognized but they should be carefully studied that they may form the basis for the selection of a vocation for the life work. This will greatly reduce the number of misfits in society.

Railway Disinfection.[1]—J. T. A. Walker approves of the recommendation for thorough scientific study in the matter of railway sanitation.

He differs with the superintendent of sanitation of the Pullman Car Company, who thinks there are but few railway sanitary problems, from the standpoint of infectious diseases, which differ from similar problems in everyday life. He thinks, on the contrary that the railway car holds an unique position in its influence on the spread of infectious disease. There is no other place of public meeting where so many people of different sorts are gathered for hours or days, in so small a space.

The temperature of the car is usually high, the windows usually closed and the conditions ideal for the incubation of disease germs.

Among those who use a car there are probably some in every trip who have some variety of contagious disease. The infectious material diffused by them is not unlikely to infect susceptible persons who may use the car on its next journey.

The author quotes the authority of Winslow and Kingour as to the infectivity of railway dust, and believes that cars should be systematically disinfected after each journey. This having been done the risk of a passenger would be limited to sitting by the side of an infected person during his journey. The authors quoted also believe that in the absence of routine disinfection the risk in travelling is enormously increased. They found by experiments upon the New York Central, the Erie and other roads that it was conclusive that disinfection with a suitable substance would destroy the germs of disease on the floor of cars, but they did not recommend formaldehyde for that purpose, thinking it too unreliable when used with steam, and irritating or even dangerous when used in its customary dilution of 1 to 6. We are left in ignorance as to what they *do* regard as the ideal disinfectant for railway cars.

[1] *International Journal of Surgery*, July, 1913.

Surgical Sociology.[1]—I. S. Wile comments upon Osler's recent address on the general hospital situation, in which he advocates the abandonment of the voluntary system of hospital care, and the substitution of the pay system, as in America, for in England every care is lavished upon the hospital poor and very little upon those who can pay for it.

Osler thinks the county hospitals, not only in England, but here and everywhere should have greater facilities in clinical and pathological laboratories. In every hospital the pathological diagnosis of every case should be made on the spot even if it is necessary to have it confirmed elsewhere. In every hospital he thinks there should be at least one man who is a student of disease and not a practitioner, except as a consultant. Two or three physicians and the same number of surgeons should not constitute the staff of a hospital when one of each would suffice. But each, under the latter plan, should be paid a salary and should devote the most of his time to his hospital work.

The small hospitals, also, should be centers for clinical teaching, a post graduate course being given once or twice a year by the members of the staff or by men of eminence from outside, invited for that purpose. This plan is similar to the congress of clinical surgeons such as was held in New York in the autumn of 1912.

It would not be difficult to find plenty of able men who would be glad to serve as physician or surgeon in a small hospital for a term of say ten years, and for a moderate salary, like the *Dogenten* in the German hospitals. We believe that the plan of giving hospital privileges, in small cities and towns to all reputable and well-qualified physicians and surgeons is correct, and is best suited to correct the ar-

[1] *American Journal of Surgery*, August, 1913.

rogance of the medical aristocracy which in some localities and in some hospitals ignores any rights which their less favored colleagues may be supposed to have, in reference to medical and surgical practice.

Rejuvenescence.[1]—I. L. Nascher observes that there is nothing inherently impossible in stimulating the functions of senile tissues, increasing metabolic activity, controlling some of the factors which contribute to senescence, and improving the mentality and physical appearance of the aged. The contracted chest and slouching attitude should be corrected, the chest made to expand and the blood to be more completely aerated, and this is often possible. The removal of worry and care is most essential for they result in mental deterioration and depression. Psychic measures alone may cause improvement in the personal appearance and give an expression of cheerfulness. The aged should be encouraged to retain the spirit of youth and present as good an appearance as possible. The restoration of senile degenerated tissues particularly the brain cells is not possible, but with proper care the degenerative process may be retarded especially by equable distribution of physical and mental activity with considerable periods for recuperation. Increased viscosity of the blood from retention of lime salts is an essential factor in the process of senescence. The lime salts are deposited in blood vessels, cartilage, bone, tendon, etc. Iodide of potash may diminish this viscosity and thus permit the blood to flow more freely through the *vasa vasorum* and the fine nutrient vessels of the tissues. The cells will thus be better nourished and they will respond with greater functional activity of the organs and tissues. The author has been successful in using the red amorphous phosphorus in such cases, the lime being thereby eliminated as amorphous phosphate of lime. Sometimes the cause of degeneration may be traced back to its original etiological factor and this be brought under control. Perhaps this may be effected by suitable braces for the back, by a cane, or by warm baths and massage. Diminished intestinal peristalsis may often be corrected by persistent use of aloin, cascara, and rhubarb. Vaseline may also be given as a lubricant to take the place of the diminished intestinal secretions.

When the teeth are gone it means that soft foods, vegetables, bread and milk must be given and very little meat in any form. Recreation must not be neglected and this is often a most significant factor in retarding decay.

To sum up the three factors which the author has found important in producing rejuvenescence are the physical condition, the general appearance, and the mentality and these must be dealt with individually to get the best and most lasting results.

[1] *The American Practitioner*, August, 1913.

The Menace to the Public from Feeble-minded Persons Living Outside of Institutions.[1]—T. Diller states that the number in the United States of those whose mind is so feeble that they require institutional treatment was estimated at 150,000 in 1904 by the expert of the census bureau. Only about 17,000 were in institutions for such people and an additional 16,000 were in almshouses. That only one-fifth of those who require institutional treatment receive it means dangers to society of many kinds, including the propagation of degenerates, vagrancy, prostitution and criminality.

Imbecility can be prevented by preventing propagation by imbeciles, but it cannot be cured. Most of the feeble-minded are degenerate and are liable to commit serious crimes, most of them are inadequately cared for, and many of them are maltreated.

The author recommends a careful census in each of the states of all who are feeble-minded, adequate accommodation for them and the establishment of a permanent board to decide in every case whether residence in an institution is desirable.

Such a decision should not be left with the parents nor should the question of removal from an institution be left with them. The subject is a large and very important one and it includes the question of the expediency and propriety of sterilization of feeble-minded men and women. If this were deemed a desirable procedure it should

[1] *American Practitioner*, August, 1913.

be sustained by legislative act. The opinion of the author is that no imbecile woman of child-bearing age should be allowed to live outside of an institution unless she has been sterilized.

Questions like the foregoing must all run the gauntlet of public criticism and weak sentimentality such as already has been aroused in Indiana and elsewhere where the sterilization of undesirables is legal. It should be remembered moreover that sterilization as legally practised does not remove sexual desire but merely the power of procreation. A brute who has been legally sterilized is therefore a brute still unless the procedure has included the removal of his external genitals after the fashion of eunuchs in the orient.

The Prevention of Needless Inquiries to the Toiler.[1]—W. H. Tolman thinks that safety and caution are not popular in America, but that one has no right to deprive his family of support or endanger his fellow-workmen by his carelessness even though indifferent to his own safety.

Unskilled workers should be taught to exercise all necessary precautions in their work, but it is not always easy for employers to give the necessary instruction to their employees and still less to unskilled workers in general.

It is believed by many that it is unjust to impose upon the community at large the support of a man who has been disabled rather than upon his employer. To get a fair distribution of responsibility and of contributions for relief we must analyze each industrial accident. Part of them are due to the inherent risks in a given industry and cannot at present be prevented. Such accidents should be chargeable to the industry, the consumer sharing in the charge by paying an increased price for the product of the industry.

Other accidents are due to carelessness, recklessness or want of discipline and for these the fellow workmen and the trades unions should be appealed to. The unions have thus far been very negligent in their duty in this respect.

[1] *Medical Review of Reviews*, August, 1913.

In the third group the employer is at fault, having failed to provide necessary safeguards, to educate the ignorant, to restrain the reckless, and to secure the cooperation of the intelligent.

The spirit of cooperation should prevail in every industry with the employer and the employed, and this has already been accomplished in the iron and steel industry.

The American Museum of Safety is the clearing-house for simple, practical and efficient methods and object lessons in safeguards, and institutions of this character should be established in every industrial center for the prevention of accidents and injuries. The feeling that injuries connected with dangerous occupations should be well compensated has sometimes led to hasty and unfair legislation. Manufacturers can head off such legislation by showing that they are desirous of reducing to a minimum the possibility of accidents to life and limb. Not only must we ensure safety to the toiler, but to those who are on the street, who are traveling, even to those who are in their homes.

The entire scheme will not only include safety devices but good sanitation, clean streets, less noise, pure food stuffs, pure air, light and water.

Prevention and not compensation is the solution of the problem and in this respect we are far behind other nations.

Thiersch's fluid is made up of 16 grains of salicylic acid and 96 grains of boric acid dissolved in a pint of sterile water. This is cleansing for mucous membranes, such as those of the mouth and eye, and it may be used whenever irrigation is employed for cleansing purposes.—*Medical Summary.*

Dr. Stark is emphatic in the belief that to give quinine to a person suffering from influenza, with severe headache, furred tongue and acute pain in the limbs, merely adds to his discomfort. He cuts the disease short in two days, he says, by giving a mercurial purge, followed by sodium salicylate, potassium bicarbonate and tincture of nux vomica.—*"Practitioner."*

ETIOLOGY AND DIAGNOSIS.

Appendicitis.[1]—Indications for the urgent operation of appendicitis are numerous and should be carefully examined, says Prof. Josserand.

In certain grave cases the facies is altered, the features drawn, the eyes sunken, but these signs belong to the stage of peritoneal infection, and should not be waited for. On the other hand, particular attention should be paid to the condition of the abdomen as regards respiration. If the diaphragm works well and the abdomen rises and falls regularly with the respiration, the indication is favourable. If, on the contrary, the abdomen remains immobilised and the patient breathes with his ribs, the case is grave.

Pain to pressure is rapidly limited to the right iliac fossa when the appendicitis means to take a favourable turn, but if pressure over the epigastric region or in the left iliac fossa is the cause of pain, the peritoneum is beginning to be infected.

Another important symptom is the sensation furnished by palpation of the right iliac fossa. If the attack is benign, the tympanism is moderate and more or less resistance is felt; if there exist symptoms of peritonitis, the tympanism is so developed that the hand cannot attain the deep organs of the iliac fossa and no particular sensation is felt in the region, right or left.

When then, all these symptoms, which indicate imminent general peritonitis are observed—vomiting, pain, acceleration of the pulse (general condition), suppression of diaphragmatic respiration, extension of tympanism and pain (local condition)—operative interference is urgent, otherwise general peritonitis will set in and the life of the patient will be exposed to great danger.

However, many of these symptoms and signs may be wanting and yet the position of the patient is not satisfactory in spite of the apparent localisation of the lesions. It is those patients who on the second or third day continue to suffer somewhat; they have not the repeated vomiting of peritonitis, but once or twice a day they reject what they have absorbed; they are nervous and uneasy. The pulse remains at about 120, but the local condition reveals a slight tympanism; such patients are approaching peritonitis.

In these doubtful cases an operation is also desirable, for, if left three or four days further in this condition, acute peritonitis may declare itself with suddenness and carry the patient off.

The attack has lost its acuity, any grave symptoms of generalised peritonitis have disappeared, the patient enters on the second period: that wherein the malady will terminate in resolution or in the formation of an abscess. In this latter case the patient ceases to suffer and to vomit, the pulse slows down, the abdomen is elastic and almost flat, the diaphragm works well. An interval of three or four days passes, during which it is not certain if the patient is going to get well by resolution or if an abscess is about to form. When an abscess begins to declare itself the temperature is seen to rise towards the fourth or fifth day; the patient does not suffer, but complains of general malaise. A mass, more or less large, is felt in the right iliac fossa, more or less tender to pressure. Sometimes the abscess cannot be felt in the fossa; in such cases the finger should be passed into the rectum.

What might happen if the abscess was left to itself? It might be absorbed—not impossible—or it may seek an opening into the intestine, cecum, or rectum, according to the situation. It might also open into the peritoneum.

Should one wait for this spontaneous evolution? Patients have been known to get well by absorption of the abscess or after spontaneous evacuation, but the result is not certain; secondary infection may aggravate the condition of the patient, but the great danger lies in the fact that one does not know where the abscess may emigrate.

Here also an operation should be strongly advised; however, there may be one exception to the rule: where the abscess is distinctly felt pointing in the rectum, nothing being felt in the iliac fossa. In such cases the abscess may be left to itself without danger.

At what moment should the operation be performed? As soon as possible after the fifth day. If, on the contrary, it were delayed to the twelfth or fifteenth day, there would be danger of septic complications towards the liver, the lungs, or the psoas muscle, while the appendix, buried in adhesions, would be difficult to find.

Another and last variety is where the patient who had had an attack of appendicitis has got well, the temperature has fallen, and the general condition is very satisfactory. What is to be done, operate *à froid* or leave him alone? The patient should be told that he is, perhaps, cured, but there is no absolute certainty about it, for a slight attack may be followed by a very grave one, and he is invited to choose between the two following: the *ennui* of an operation or the *ennui* of being always exposed to the danger of new attack, which might be much more grave. It is not for the surgeon but for the patient to decide.

M. Josserand advises the operation *à chaud* in the great majority of cases, reserving the operation *à froid* for those cases, almost exceptional, where the patient has not been seen at the *début* of the malady or where it was not characterised enough to form an opinion.

[1] *Med. Press and Circular*, Apr. 23, 1913.

Tuberculin Diagnosis in Children.[1]—N. Stricker discusses the value of inoculations in diagnosis of tuberculosis in children. The condition in most infants is acute, that the condition is generally also fatal would lead to the belief that infants are poor antitoxin builders or that the disease is more virulent. In the author's tests a comparatively small number of children were inoculated. His conclusions are that while the tuberculin reaction is supposed to be specific, there is a great divergence between the results of the tuberculin reaction and the clinical and pathological observations. A positive tuberculin reaction in an infant is an excellent evidence of the presence of an active tuberculosis; in older children it is only a presumptive evidence of an earlier tuberculosis. The skin reaction is positive in other acute diseases, as pneumonia and measles. Negative reaction in infants or children is no positive indication of absence of tuberculosis. Children with the exudative diathesis give most positive reactions. There is no relation between the intensity of the reaction and the severity of the infection. A careful critical observation of the temperature reaction is necessary, since it is present in so many other conditions in children, the so-called "herd reaction" is seldom seen but is a positive indication of tuberculosis. A positive cutaneous reaction is of less value than the subcutaneous. The subcutaneous reaction is not altogether without danger, while the cutaneous reaction is perfectly safe. The value of the tuberculin reaction has been overestimated and must always be checked by the symptoms and general conditions of the child.

TREATMENT.

The Whitehead Operation for Hemorrhoids.[2]—In 1882 and 1887 Whitehead presented an operation for complete removal of the diseased area, with preservation of function, immediate closure of wound and permanency of cure. The principal objections to this method have been hemorrhage during operation, impairment of function (such as incontinence, stricture, etc.) and difficulty and time required for operation. In Noland's series of 200 cases there was no mortality, no case of serious hemorrhage, and no case of recurrence, secondary hemorrhage or infection. There were two cases of constriction, which he believes were due to faulty technique, and both were relieved by multiple incisions of the constricting scar and dilatation. One case had partial incontinence for about three months. No case required over 30 minutes for operation and the average was under 25 minutes. Post-operative pain in slight and easily controlled. Ether was used in 174 cases, spinal anesthesia in 26.

No food is given for at least 12 hours before operation. Castor oil, 1½ ounces, is given 8 hours before operation and is not followed by enema if the bowels move freely. After anesthesia the patient is put in the lithotomy position with the buttocks well over the edge of the table, the external field shaved and scrubbed, the sphincter fully dilated and the rectum thoroughly flushed with warm water. Through the sphincteroscope a gauze sponge is deposited well up in the rectum. The external field and lower rectum are then gone over with 60 per cent. alcohol and 1-5000 bichloride solution.

"With the sphincter fully dilated and the hemorrhoidal masses in view, T clamps are carefully placed around the entire circumference of the bowel at the mucocutaneous junction. Care must be taken to grasp only the barest edge of skin. With the left forefinger in the rectum, as a guide, an incision is then made through the skin around the entire circle, keeping closely against the upper edge of the clamps. When this preliminary incision has been completed, traction is made on the clamps and with free strokes of the scalpel the sphincter is exposed. If the forefinger is used as a guide and care be taken that the strokes of the scalpel are made at right angles to the guiding finger and close to the retracting skin margin, a very rapid exposure of the entire circumference of the sphincter can be obtained, with little or no hemorrhage or tearing of the tissues. The lowest attachment of the muscle to the bowel is then freed with a few strokes of the scalpel and the muscle rapidly rolled back, using the side of the scalpel blade or handle until the hemorrhoidal area is passed. The clamps should now be reset, close together, around the entire circle, grasping normal tissue just above the hemorrhoidal area. Care should be taken that the dissection has been sufficiently complete to allow that portion of the bowel at the upper edge of the reset clamps to be brought to the skin margin free of any tension, and that no portion of the muscle is in the grasp of the clamps. The whole field is then flooded with hot normal saline solution until all oozing has ceased. An incision is now made in the long axis of the bowel (on its anterior aspect) extending to just above the line of the clamps, and the first suture is taken from skin through mucous membrane at its apex. The line of sutures is continued around the circumference of the anus by cutting along the clamp line a small section at a time, each section being carefully sutured as cut. The operation is completed with the removal of the rectal sponge, flushing off the suture line with normal saline solution, and the insertion of a gauze-wrapped rubber tube about ¾ inch in diameter, thickly coated with iodoform ointment."

Ligation of vessels is rarely if ever necessary, the only bleeding of importance coming

[1] *Monatschrift Kinderheit Bd.* XI, H 10, 1913.
[2] Lloyd Noland, *Surg., Gyn. and Obst.*, Feb., 1913.

from vessels in the wall of the rectum proper, and by putting in the sutures at a slight angle this bleeding is readily controlled. Eighteen to thirty interrupted sutures were required and Pagenstecher yarn was found to be the most satisfactory suture material. These sutures separate and come away in about ten to twelve days. The anal orifice after suturing should easily admit two fingers without tension on suture line.

The rectal tube is removed in 24 hours, iodoform ointment applied two or three times a day for three days and on the fourth day a good dose of castor oil is given. The parts are flushed with normal saline after each defecation up to the fifth day. The patient is allowed up on the fourth day and usually leaves the hospital by the seventh day. Four excellent illustrations clearly show the technique of operation.

Lung Tuberculosis.—Balboni (*Boston Med. and Surg. Jour.*) considers that after eighteen months' experience with artificial pneumothorax, this procedure has a place in the treatment of lung tuberculosis. He says it is justifiable to try any new treatment in tuberculosis of the lungs. This method of treatment has given good results.

Measles.—D. I. Connolly (*Practitioner*) gives a hot bath, immediately followed by a thorough application of oil of eucalyptus, to the entire cutaneous surface, except the hands and face about the nose, mouth and eyes. Irrigate the mouth daily with weak alum lotion, and apply glycerine and borax to the mouth and gums. Carbolic oil, 1-10, should be applied to the tonsils and fauces morning and evening. Each day for four days the patient should have a blanket-bath, morning and evening, and then another eucalyptus inunction. Connolly believes, by giving particular attention to the mouth and throat, that he is striking at one of the chief strongholds of the disease. Out of 160 patients so treated, there were eight deaths, a case mortality of 5 per cent. Seven of the deaths were due to gastro-enteritis, and one to meningitis.

Pituitrin in Child-birth.—Malinowsky (*Zentr. für Gyn.*) says pituitrin seems to possess a happy combination of therapeutic qualities—utero-vasculo heart tonic. In proper doses it has a prompt ecbolic action. One dose of 1 cc. was found entirely adequate. The maximum single dose which still gave good results was 1.3 cc. A half dose, as well as repeated small ones, exhibited a weaker action. The action begins in three to seven minutes after an injection. These injections are entirely painless. The duration of action of one dose is about an hour. It seems to act most favorably in the first and third stages, and is apparently without danger to mother and child. It seems to be contraindicated in heart and kidney diseases.

Obesity.—Galisch (*Med. Klinik*, Berlin) reduces the weight successfully in corpulent patients by a simple measure. He reduces the amount of food taken after mid-day. By this method the patient has less opportunity to build fat at night time. The appetite receives saisfaction at breakfast and noonday dinner. For supper, one small sandwich and a cup of tea or coffee is allowed. Work or exercise is prescribed for the afternoons. Of the patients treated in this manner, all lost one or two pounds a week. There was no weakening.

Hammer Toe.—W. J. Merrill (*Am. Jour. Orthopedic Surgery*) transplants the extensor tendons into the metatarsal bone. This preserves the function of the muscle. It also prevents atrophy of it. The muscle pull raises the metatarsal head, lessens the tendency to one feature in the mechanism of hammer toe, and as well, often relieves an associated metatarsalgia. The flexors are implanted into the base of the first phalanx.

GENERAL TOPICS.

Progress of the Drug Trade Exhibition and Conference.—Includes Ethical Exhibit and Interesting Educational Exhibit.—The plans for the Drug Trade Exhibition and Conference, to be held at Grand Central Palace, October 2nd to 9th, 1913, are rapidly nearing completion. The program for the Conference of Physicians and Druggists is about completed and many papers of interest to the trade and profession will be read before the Conference. A special section has been set aside as an Ethical Exhibit for the display of pharmaceuticals to the profession only.

Several thousand square feet of space have been set aside for the various Educational Exhibits, which promise to be of interest to the public, and arrangements have been completed for illustrated lectures to be delivered to the public daily.

As the matter progresses, it becomes more and more evident that this Exhibit will arouse fully as much, if not more interest, than the various Pure Food Shows, as the subject is one in which the general public is vitally interested.

Upwards of 300,000 invitations will be distributed to the public, thus affording ample opportunity for a good attendance.

627

American Medicine

EDITED BY
H. EDWIN LEWIS, M. D. and CHARLES E. WOODRUFF, M. D.
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.
Copyrighted by the American Medical Publishing Co., 1913.

Complete Series, Vol. XIX, No. 10.
New Series, Vol. VIII, No. 10.

OCTOBER, 1913.

$1.00 YEARLY in advance.

Food adulteration is still a crying evil in spite of much remedial legislation, according to Prof. H. H. Rusby of Columbia University. The Federal Government has vastly improved the interstate food traffic, if we are not greatly misinformed, but by common report there seems to be room for vastly more improvement, though of course it is not possible to give details in substantiation of this impression. It is a matter for investigation and publicity. There has also been great improvement in State traffic, though here and there scarcely anything has been attempted. Many of the frauds are not inimical to health and we are interested in them merely because of the moral delinquency involved. No one should be deceived as to what he is buying or eating even if it is harmless to health, and such deception opens the door to frauds which are harmful. There are too many frauds which are unwholesome to waste time fighting a sanitary battle against those which are harmless or of doubtful effect. For instance a small amount of glucose cannot be accused of being injurious, when one of the digestive processes is to change other sugars into glucose, but we ought to know we are eating it and how much. Otherwise we might take it in really poisonous amounts, for there is no question that it is very harmful in strong solution—indeed all sugars are germicides of great power long used to preserve many of our staple foods. Let us then wage a crusade for correct labels and urge heavy penalties for selling anything under false pretences. There is no use in quarreling over the toxicity of small amounts of preservatives. Perhaps we can all agree with those who state that there is no proof that the small quantities commonly used are harmful, and that such minute amounts are permissible, but we ought to know how much we are taking and also have the opportunity to refuse to purchase such chemically preserved foods, restricting ourselves to those preserved by salt, sugar and the creosote of smoke-cured meats. Some of us may have idiosyncracies by which we are poisoned by some of the chemical preservatives so commonly used. In addition, no one likes to buy foods which are so dirty and infected that they will not keep without strong antiseptics.

The proper control of public eating places is the real problem. Here too we notice a very great advance wherever there is a well equipped health department, but from the number of travellers who still are made ill by food infection, it is quite evident that we are far from perfection. Perhaps the death of Wilbur Wright, the pioneer aviator, was due to such infection when away from home. This one loss to civilization is so great that it would have been profitable to have prevented it at a

hundred times the present cost of sanitation. Our own personal danger is so great that we must take remedial measures and avoid all towns or hotels known to be careless. Why could not commercial travellers publish a list of places which are under proper sanitary control? That would bring hotel and restaurant men to the point of demanding inspection and official publication of the facts. In view of the possibility of being killed by bad food, it would be justifiable to have a "black list" of places to avoid. We trust therefore that the excellent sanitary inspections of a few of our larger cities will be extended to every hotel and restaurant in the land. Publicans are not necessarily sinners, but must be considered so until proved to be clean which is at least next to godliness. As a beginning let the newspapers make it a part of their business in all cases where travellers have contracted typhoid or have suffered from food poisoning, to let the public know where the sufferers have been eating. It will only be warning us against a species of criminal, for it can be accepted as a fact, nowadays when sanitary knowledge is so wide spread, that the food purveyor who distributes disease is a criminal. The only reason that some of them are not sued for heavy damages by victims, is the difficulty of proving "without reasonable doubt," that the disease was contracted at a certain place and time and by a certain article of food or drink. As it is a municipality's duty to protect its citizens and guests, the question arises as to whether it is not liable for heavy damages for injuries resulting from its neglect to compel food purveyors to be sanitary.

A renewed crusade against fraudulent drugs is promised by Dr. Carl L. Alsberg, Chief of the National Bureau of Chemistry. We wish him godspeed and success, and so does every physician, druggist and sick man. There have been frequent complaints on the part of the manufacturers that unprincipled people are constantly making and selling imitations of standard drugs, or mixtures, and we are reluctantly compelled to believe the charges true. It is also charged that the old crime of short-weight tablets or pills is still practiced. There is no question that many soldiers and civilians perished of malaria during the Civil War because the quinine pills said to contain five grains of the drug, had but one grain or so. A few venturesome therapists began giving more, and published excellent results from 100 to 200 grains or more a day. Perhaps they were giving but 15 to 20 grains after all. We can well see that such fiendish practices as short-weighting may be fatal nowadays, and it is highly essential that packages should contain exactly what they claim. Misstatements are far more than mere frauds. Alsberg's greatest efforts will probably be directed against the most horrible of all frauds—the patent medicines which make impossible claims of efficiency with a view of extorting money from incurable people who are necessarily lacking in judgment and who will clutch at any straw. It seems that the former crusade against this unspeakably contemptible business has not been as successful as it should have been, because so many healthy people believe the advertised claims and insist upon buying the stuff for themselves or their friends and relatives. Demand creates supply as in every other "business." Manufacturers still supply amber beads to keep off "croup" as the American people demand the right to buy what they please. So it is a nice question as to how far paternalism can go without

interfering with that personal liberty so necessary for safety in other affairs. The medical profession as a body has bitterly opposed every new and revolutionary measure of its pioneers, such as vaccination and the out door treatment of consumptives, so we cannot expect to be considered infallible guides. In spite of our opinion that a certain drug or mixture is useless or harmful, people will persist in using it, merely remarking that we have made mistakes before and may be making one now, and we richly deserve our present position. If we could have had the power we certainly would have forbidden the Pasteur method of curing rabies. It may be just as well, then, that the power to forbid the manufacture, advertisement and sale of patent medicines be surrounded by certain safeguards, and that for the present we confine our efforts to prosecuting unquestionable frauds. There are enough of them, Heaven knows, to keep Alsberg busy the rest of his days, but we hope his days may be long in the land.

The need of medically trained public servants has been mentioned in these columns many times, and we have frequently called attention to the failure of the American medical profession to take that active interest in civic and State affairs which characterizes the profession in continental Europe. Virchow was one of the city fathers of Berlin for a long time and there is no doubt that he and his medical associates were entirely responsible for the wonderful efficiency of that city's government. American cities are now reducing their typhoid death rate to where the Berliners reduced theirs over a quarter of a century ago. We have had equally capable health officers, but their efforts are often minimized or even neutralized by the passive resistance of the city officials who are grossly ignorant of the sanitary needs of the people. When physicians are in the legislative and excutive branches, proper and prompt action is almost certain. In their absence from public office it has required nearly a half century to convince city administrations that sanitarians are not a set of officious busybodies. There is still an enormous amount of work ahead because there is scarcely a branch of the city's government which does not involve medical problems. Even crime is strictly within the sphere of psychiatry and hygiene, for social parasites are generally victims of vicious municipal conditions which physicians have denounced for ages. Street construction and cleaning, water supplies, sewers and sewage, building regulations, indeed all municipal problems are as much a doctor's work as an engineer's. Yet we have a curious delusion in America that a legal training is the only kind which tells a man what kind of matters need legal remedies. Medical men have held so aloof from public administrative office, that the public has gained an idea that medical study unfits one for administrative work. The present head of the army is a medically trained man, and it was due to him and to him alone, that sanitarians were permitted to do what they thought best to conquer yellow fever in Cuba. If we had more such in State and National civil service our backwardness in vital statistics and sanitation would not be so disgraceful.

The candidacy of Dr. Thomas Darlington for Borough President of Manhattan deserves special support from both laymen and physicians because he has already proved by public service that he is an ef-

ficient, capable and learned administrator. Dr. Thomas Darlington was Commissioner of Health of the City of New York from 1904 to 1910. It is a gratifying fact that not only was his administration free from all scandal but will stand for many a day as one of the most notable in the history of the city for actual progress in sanitary matters. Thus the first laws enacted against the indiscriminate sale of carbolic acid and cocaine were drawn at Dr. Darlington's instigation and the present scheme of school hygiene was developed from his plan of medical school inspection, while his report to Mayor McClellan on Croton water conditions brought about a new system of pure water supply for New York. During the time he was in charge of the city's health the death rate decreased from 20.01 in 1904 to 15.98 in 1910. Therefore, it will be fortunate for the people if he is elected and we earnestly hope he will be. New York City will then be following the precedent of Berlin when it called on Virchow for similar service. Pretty nearly every problem Dr. Darlington will have to solve, will need the engineering and medical knowledge and experience he possesses. We see the time near at hand when our death rates from preventable causes will be as low as those of Berlin. Our present health authorities are fully capable of doing this if they are only given the means they ask. Dr. Darlington, from his experience as health commissioner, knows what difficulties the sanitary officials meet and as Borough President he can materially assist in overcoming them. We hope to see the day when physicians are elected as members of every civic body, to originate, guide and direct new measures of public safety. We have neglected our civic duties long enough, so let us turn over a new leaf now by getting together in support of Dr. Darlington. Every physician by the very nature of his daily duties is the teacher of laymen and his words have great weight with the families of his patients. Our medical societies by-the-way waste too much time with papers on operations which not one physician in a thousand will need to know a thing about. It is really a civic duty for them to devote many meetings to municipal sanitary problems which every physician should know and tell to his patients and their friends. Then laymen will demand doctors in offices where grocers and lawyers have rattled around. This is not a political matter at all, but a vital departure in the direction of civic betterment. If doctors do as they should, each one can influence dozens of votes to establish the new era of the entrance of the medical profession into public affairs as in Europe where they even serve in the councils of Kings.

The simulium fly is at last receiving the study in the United States its importance demands. A preliminary report was published in *Science*, Jan. 17, 1913, by Professor Stephen A. Forbes, University of Illinois, the official entomologist of that State. There are about seventy known species of this insect, variously called the biting, black or sand fly, fifteen of them being found in the United States and one of these is also found in Europe. Although this fly is a serious pest here and there in the late spring or early summer, its study has been greatly neglected, perhaps because there was no practical purpose in sight for the expenditure of public funds, and we are too practically minded a people to waste

money collecting information about bugs in general and this one in particular. Still we cannot understand why the information had not been classified as a matter of pure science, like the data as to mosquitoes were even before they became matters of practical sanitation. The simulium takes on great importance now that Dr. Louis W. Sambon of the London School of Tropical Medicine has published facts which indict it as the carrier of the infecting agent of pellagra (*Journal of Tropical Medicine,* 1910,) and we understand that he has since then collected enough more evidence to make conviction certain. That is, pellagra is not due to a maize diet at all, but is an infection imported from Italy by the hordes of immigrants who have arrived in the last thirty or forty years. The opinion is growing that it is a new disease here and had not been long overlooked as we once thought. Our alienists and dermatologists are too keen to have missed such a clean cut entity and we are now justified in concluding that the sad condition is a recent affair. The believers in the maize theory explain the sudden appearance by the alleged fact that only recently have southerners been using northern corn which spoils because it does not have time to ripen on the stalk. But this argument is now worthless because the disease is appearing in northern places where they have never had any other kind of corn.

The seriousness of the pellagra situation is shown by the fact that it is appearing in new areas where it had never before occurred and where there has been no change of diet to account for it. What makes the matter worse is the discovery that the insect is very widespread in Illinois where ten species are found, and that no part of the State can be said to be free of it. In Italy the insect is limited to the immediate vicinity of the rapidly flowing mountain streams in which it passes its larval stage, and it does not enter houses or cities. Pellagra is confined solely to those whose callings take them to the neighborhood of the above water courses—that is, the afflicted are mostly country people of the uplands who work outdoors or those who have visited the infected locality. In Illinois the fly breeds in the lowlands throughout the State, even in slower streams and roadside ditches in which the water flows more or less freely. It has been caught at least five miles from its breeding places and enters houses and cities. Most of the Illinois cases are in people who have lived in or near towns, and they so far seem to show a tendency to come from restricted localities as though the infection was slowly spreading from new foci. The outlook is not pleasant, and if the infection spreads we have another insect against which we must carry on a perpetual sanitary warfare as its elimination does not seem so practicable as in the case of the mosquito. We must again call attention to the urgent need of a large, well equipped aquarium for the study of the diseases of water animals, as there has been a suggestion that the cause of pellagra is a harmless inhabitant of a cold blooded species. The relation of fish to leprosy is still entertained and there is room to suspect that some of our other ills come from the water rather than the land.

Placing the Blame for Infection.—There is a rumor, which it would be very difficult to make us believe, that some surgeons will never admit any personal cul-

pability when infection develops in an operative wound. It is alleged that such a surgeon will first incriminate the nurse, but if that young woman has pluck and spirit and is not afraid to say a few words on her own behalf, he will ignominiously back down and transfer the blame to the catgut or dressings. Here he appears to be on safer ground, for it is freely stated that there are many grades of surgical supplies and that the cost of these varies not only with the quality of the goods of which they are made, but also with the care and length of time involved in their sterilization. If this statement is true, it speaks of a not very creditable condition of things. Either a dressing is sterile or it is not, and any procedure short of absolute sterilization in the preparation of bandages, gauze, gut, etc., is a grave wrong, partly to the operator, but much more so to the patient.

Without committing ourselves to any economic policy which would tend to disrupt accredited business methods, we cannot help feeling that some day the entire field of drugs, prescriptions, surgical supplies, everything that concerns materia medica and the armamentarium, must undergo a great many changes along much needed lines. The fact that there are grades in surgical supplies, when there should be but one grade and that the best, the impossibility of control by the prescriber of the filled prescription, must all lead eventually to the establishment of definite standards that will protect both the doctor and his patients.

The Independence of Drug Houses.—The foregoing considerations suggest a query, prompted not in the least by any sinister or malicious motives, but simply by curiosity. Why has there never been any amalgamation among the great drug manufacturing houses? Where we see the great oil producing companies, the steel manufacturers, railroads, tobacco growers and curers, and other big interests drawing constantly together into fewer and fewer powerful trusts or combinations, why has there never been apparently even a suggestion, except among a few retailers, of similiar action by the drug houses? It seems to the casual observer that the benefits of combination, both to manufacturer and consumer, would be as great in the drug business as in any other. One result of combination has always been to lower the cost of production and the sale price as well, and this would be welcomed by a profession which has little money to spend, as well as by the laity, which has always paid its medicine bills with groans of dissatisfaction. With the numerous preparations, official and unofficial, at present on the market, it takes the physician a lifetime to decide which is the best, and he is likely to find that his nearest colleague disagrees with him altogether. Both cannot be right and both may be wrong. We make the statement with diffidence, but it seems that the only alternative to the socialized or co-operative dispensary is a combination among the leading manufacturers of both drugs and surgical supplies, the absorption of the smaller, and the consequent marketing of the best preparation of each kind instead of a score or more as at present. Such a combination, it seems to us, would not only do away with substitutes and inferior drugs, but raise standards generally.

The increasing consumption of alcoholic beverages in the United States comes up for discussion annually as soon as the revenue officers report the amount of tax

collected for the fiscal year ending June 30. Year by year we hear the same old story—more liquor is being consumed but there are fewer deaths from alcohol, less drunkenness, public health is steadily improving and there is an almost universal decline in the general death rate. Then comes the annual story from the Prohibitionists as to the further increase of territory in which the sale of liquor is forbidden by law. In the immense amount of literature on the subject, there is scarcely a word of acceptable explanation of the amazingly contradictory facts. It must be explained as we are drifting slowly to a very undesirable state of affairs if all this liquor is doing the harm we think it does. We as physicians must know the facts and reasons for them before we can intelligently formulate some method of checking the apparent tendency to intemperate drinking. One thing is certain, legal prohibition is not proving as efficacious as its fanatical advocates thought it would. The number of people in "dry" territory has now increased to nearly fifty per cent. and yet the per capita consumption of liquors has increased from an average of 8.79 gallons from 1870 to 1880, to 21.98 in 1912 and still more in 1913. A few have asserted that the importations from adjoining States into dry territory are actually more than what was sold locally before prohibitory laws were passed, but there are no reliable statistics in support of this opinion. It seems true nevertheless that drinking in prohibition territory has been transferred to the class of people financially able to import it in wholesale amounts, and that those who were so poor that they could only buy a few drinks at a time are now more temperate because unable to buy when they have the price. Perhaps this is the end desired but it has other evils for there is also some ground for asserting that the well-to-do are really drinking more than formerly from the constant presence of liquor in the house. Prohibition must do some good to some one or the residents of dry areas would not be so strongly in favor of it, nor would they have developed an almost universal opposition to any legislation which will forbid importations. It is all so bewildering that it deserves a sober explanation from investigators who are not connected with the liquor interests or the Prohibitionist party. The literature on each extreme side is partisan and therefore not entirely reliable.

The ultimate effect of our increasing use of alcoholic beverages is a matter of grave concern. If the accepted opinions as to alcohol are correct this growing habit must do harm. If the known harm from alcohol is really diminishing then we must fundamentally modify our scientific opinions as to the ultimate effect of the steady use of it in moderation. There is little dissent from the conclusion that alcohol is never a stimulant, but always a depressant, which soothes, or paralyses nervous tissues, and that a certain amount of it is oxydized to produce energy and conserve other tissues. Indeed some physiologists assert that in both plants and animals, alcohol is one of the stages through which carbohydrates pass in their reduction to carbonic acid and water in our cells. Is it possible then that alcohol is doing more good and less harm than formerly, because more take it in moderation and fewer to excess? We are almost afraid to make the suggestion, but that really seems to be a legitimate explanation of the contradictory facts. Of course the

improvement in public health is largely accounted for by the diminution of the infections by sanitation, but there also must be less alcoholism as compared to the time when all men drank to excess. Nowadays indulgence is not permissible in many callings, and in some, a single occasion of over indulgence is liable to lead to dismissal. There is every deterrent to intemperance, but in the majority of employments there is still no objection to strict moderation.

The drinking habits of the new stocks of Americans have had a great effect in modifying the per capita consumption of alcohol. They come from lands where weak alcoholic beverages have been made for thousands of years. Dr. Archdale Reid of England has conclusively shown that the longer the people are acquainted with weak alcohol the more temperate they become through the law of survival of the fittest and death of the unfit or those who go to excess. More Americans drink moderately and fewer to excess and the change in national habits began with the great modern stream of immigration. We must make allowance for the immense quantity of hard cider formerly consumed in America, together with other home-made alcoholic beverages, but even these cannot alter the conclusion that we do drink more now than formerly, and we are driven back to the conclusion that alcohol is not as bad as we have painted it. This is a scientific matter which we as physicians must solve and we ought not to be ashamed to confess that we have been mistaken. We have long ago acknowledged that we were wrong in blaming alcohol for all the hardened livers and arteries and kidneys we saw, and we have even confessed that healthy, heavy drinkers may have less of these conditions than abstainers with bad digestion. So we ought not to be afraid to tell the world that our increasing consumption of alcohol is not an indication that the people are going to the demnition bowwows. They are getting healthier, happier, wealthier and more moral every year. Could a little alcohol have contributed to this desirable end? There now! We have made the awful suggestion. So let us get to work and find out whether a little alcohol can do good. All prior studies have concerned themselves with proving that too much is harmful—a perfectly useless waste of scientific energy as everyone knew that.

Is a Small Daily Tipple of Any Use?—We have always assumed that even if no harm resulted the habit was useless, but no one knows whether or not this assumption is correct. Of course life insurance people often tell us that the abstaining class live longer than the moderate drinkers, these longer than the "careless" drinkers and the excessive drinkers live the shortest time of all, but they argue from a small selected class of provident people who would naturally take care of themselves. On the other hand the aged paupers in most of our poorhouses have been brought low by alcohol but it has not apparently shortened their lives. There are so many other contradictory absurdities in this whole subject that it must be cleared up. The old committee of fifty fizzled out after showing that excessive amounts did not do the kind of damage we had previously assumed, and since then nothing of importance has been done. Our agricultural stations might take up the matter in their wonderful feeding experiments. Many of us are total abstainers because we think it best but we do not

Dr. Thomas Darlington.

know surely. It might be accepted as true that such universal racial habits as the use of alcohol seems to be, can not be deadly or the races or nations or individuals adopting the custom would be at a disadvantage in the struggle for existence and disappear by the law of the survival of the fittest. On the contrary, southern races have used it ever since they discovered that old grape juice had effects not experienced when fresh grape juice was used, while the northern races have been addicted to its use ever since they found that an old mixture of water and wild honey or "mead," was pleasant to take. If our present ideas are correct the Germanic races should have died out centuries ago, but they seem to be more vigorous than ever. Could the alcohol have helped to this desirable end? Prof. G. T. W. Patrick of the Iowa State University (*Popular Science Monthly*) has advanced the opinion that the craving for drink is a desire to deaden the higher mental spheres which, being the last evolved, are the feeblest and suffer the most from the pains of exhaustion in the struggle for existence. All races are constantly meeting new situations which demand new energies for which we have not yet developed the nervous mechanism, and there is an undue strain. This is only reducing to finer terms the well established fact that men drink to deaden the sense of fatigue. Dipsomania is the result of an unbearable agony of profound nervous exhaustion which can be relieved only by alcoholic coma, and it is only an exaggeration of what every busy man normally feels at the end of a hard day's work. What we want to know is whether the average man's consumption of alcohol is doing the harm our teetotal friends assert or whether it really is beneficial. Deaths by alcoholism were 6.1 per 100,000 in 1905-9 and are now but 4.9 in spite of an enormous increase of consumption. Could moderation have been partly responsible for this change?

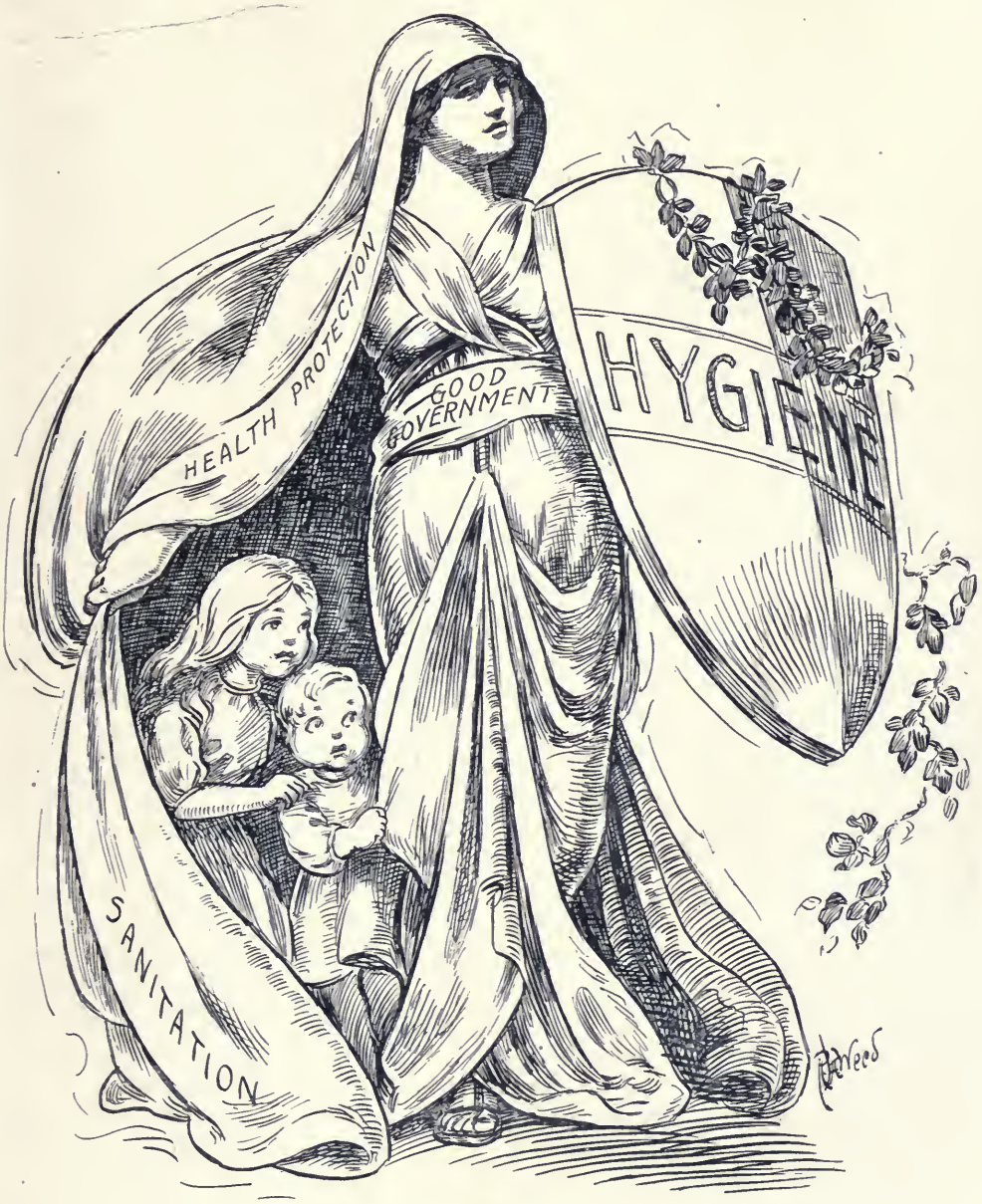
Was Hamlet Gouty?—Sir Johnston Forbes-Robertson is said to be giving us the greatest Hamlet since Booth. The wonderful gifts of the Stratford poet are shown nowhere more brilliantly than in the fact that as each new pathological theory of his temperament comes to light, Hamlet fits it as he did all those which preceded it. A victim of "too, too solid flesh," "fat and scant of breath," Hamlet is to us of today obviously a sufferer from the gouty or lithemic diathesis and in grave want of appropriate treatment for the autointoxication caused by too heavy a meat diet and the fermentation of proteins. Hamlet's indecision, his fits of temper, his alternations of humor from an excessive gaiety to the profoundest gloom, fit this new diagnosis like a glove. The picture shows Shakspere's marvellous powers of observation, for the clinical ensemble is perfect, although in the poet's day the Prince would have been adjudged a victim of peccant humors or else as possessed of a devil. Sir Johnston, great player as he is, does not look the part of Hamlet; he is a bilious and saturnine, even if undeniably handsome and impressive figure. Fechter seems to have been the only actor of modern times who fitted Shakspere's description. He was indeed fat and short of breath and he wore a blond wig which gave him some real resemblance to a Dane. Fechter's physical deficiencies interfered sadly with his art toward the close of his career and more than once he was compelled to have the curtain rung down in the middle of some

drama on account of a sudden attack of angina pectoris. It is well perhaps for an actor to have the physical characteristics of a role he is impersonating, but he must be in full enjoyment of health and strength in order to give a satisfactory rendition. This is why a young man often gives a better and more realistic portrayal of an old man on the stage than any really old man can supply; many modern managers lose sight of this elementary principle and, in their actors give us the physical pictures only with but a trace of the art required to produce illusion.

The renewal of the anti-cocaine crusade is timely and necessary as the conditions are scandalous. There is no question that the more difficult it is to get the drug the fewer will be the victims, though we might as well acknowledge that the effect on the old habitué will be merely to increase the cost. Money will buy anything apparently and there are scoundrels ready to engage in any traffic no matter how deadly. Demand creates supply. So it is an open question as to how far restrictive legislation should go if the trade is not prohibited entirely. We have already mentioned how physicians' prescriptions are forged, and also the venality of a few regularly licensed druggists. Would it be practicable to make the possession of the drug a penal offense, and confine the medicinal dispensing to a few drug stores which must account to the police for every grain sold? Are the manufacturers to go on at absolute liberty to make as much as they please and sell to anyone with the price? Should they not be under bond and surveillance? Should not every importation of the crude drug or alkaloid be similarly followed to the ultimate consumer? On the other hand we must calculate the chances of thus creating a regular underground traffic protected by graft. We are told by investigators that in every part of the country, restrictive laws of all kinds have proved worthless and though a note of pessimism pervades all reports everyone seems to think that a remedy will be found somehow, sometime by somebody and that we must go on experimenting until the somebody hits on the right plan. While approving all this, we cannot help thinking that we are attacking the problem from the wrong end—cure instead of prevention.

The enormous consumption of morphine and cocaine in America is the basic fact from which we must begin our labors. Statistics seem to show that our per capita consumption far exceeds that of any other nation in the world, and no one has ever given a respectable reason for our national depravity. These drugs are more difficult to obtain than in many countries where the habit is not formed, though the drug is openly sold. The question is, why do Americans develop a craving unknown to their ancestors in Europe. There is a nervous instability at the basis of every case investigated as far as we are informed. A normal man can be heavily dosed in a temporary illness, but has no craving for the drugs later, while a neurotic may develop a craving from one dose. In the underworld, people take to it merely from hearing of it.

This is not found in Europe except to a much less degree, and even then the habit is a sequel of long continued exhausting conditions. With us it seems as though the victims had a craving to begin with. Why is all this? Some of the victims are of very inferior intelligence, but these types do not crave the drugs in Europe to such an extent. There is some connection with that national nervousness for which we are



"The fundamental obligation of GOOD GOVERNMENT is to safeguard the health of the young and helpless, for the welfare and prosperity—the very existence—of the COMMUNITY depend on the protection afforded our children against dirt and disease. If the forces of hygiene and sanitation are successfully employed and our little ones are kept well and happy, the COMMUNITY will wax wealthy and strong; if these forces are neglected or indifferently employed, our little ones will suffer and die, and the COMMUNITY will become impoverished and weak. In all the world there is no law more certain and inexorable."

noted and the causes seem to be all those environal factors which are different than in the fatherland. The workers in this special field have a far greater task than they imagined, if they are to solve the puzzling causes of our degrading drug habits. A careful study of the cases may reveal remediable causes, but we are much afraid that some are irremediable—the climatic ones for instance. We cannot prevent until we do know the causes, and we beg the workers to find them. Every advance in civilization seems to be more or less injurious to some one, and so does a change of environment—such types are destined to disappear by nature's greatest law. So we are not facing any new process in the elimination of those who crave cocaine and other newly discovered drugs.

Feeding the Surgical Patient.—Chauvin and Œconomos, in the *Revue de Chirurgie* for March 10, 1913, give an admirable study of the effect of surgery under anesthesia on the urine, rhachianesthesia producing practically the same effects as ether and chloroform, although the mechanism may be quite different. Most authors attribute the altered urine to acidosis from the anesthetic alone, the condition present being an augmentation in quantity of all the normal solid constituents of the urine save the chlorides; the presence of abnormal bodies is rare and the urine is diminished in total quantity. Without going deeply into the detailed and otherwise admirable thesis of the authors, we may say that they attribute the urinary disturbance, not only to the anesthetic, but to improper or insufficient food given preoperatively, a factor which they choose to call the "dietetic shock," and which must be taken in consideration along with the anesthetic or traumatic shock. As the anesthetic suddenly empties the liver of glycogen, the authors believed it necessary to give the surgical patient a large quantity of an easily assimilable carbohydrate, and they chose glucose. At first they had great trouble in getting patients to take this insipid substance and found that some of it was being thrown out of the window, although what little was swallowed had already had a good effect. They therefore devised a mixture containing a tincture of nux vomica, 7.5 minims, tincture of cinnamon, 1.5 drachm, glucose 5 ounces, and water enough to make 10 ounces. This proved to be so delicious a potion that the patients actually demanded it in advance of the regular hour for taking. The dose is given the evening before the operation and for three days afterward. If, despite this dose, postoperative accidents happen, the glucose is given in still larger amounts by mouth, rectum, or vein. Acting by the analogy with the diabetic coma, sodium bicarbonate may be added; if the cause of the acidosis is not removed, at least the symptom is scientifically met. The authors lay great emphasis on the necessity for giving the glucose instead of insisting upon the patient's fasting, a course of procedure which, they are sure, invites the urinary trouble which they have investigated with so much care and which they believe they have now obviated altogether. They point out, indeed, that similar urinary disorder may follow a simple fast without either surgical trauma or anesthesia, as it has frequently been observed in a professional faster by the name of Succi who was studied by Lambling. Urinary changes have followed simple local cocainization, a fact which may explain the occurrence of severe symptoms after apparently trifling resections, like that of the septum for example, a manifestation which has proved puzzling to a few operators and which has been sometimes attributed to idiosyncrasy.

MEN AND THINGS.

An Important Announcement.—It is with great satisfaction that we are able to announce that arrangements have been completed whereby Dr. Charles E. Woodruff, Lt.-Colonel, U. S. Army Medical Department (retired) becomes a co-editor of American Medicine. Dr. Woodruff has had a remarkable experience both in this country and in the Philippines. That he has made the most of his splendid opportunities is well known and his work, especially in connection with hygiene and sanitation, has attracted the attention of scientific students the world over. The great questions of sociology have also come within Dr. Woodruff's field of investigation and his recent book on "The Expansion of Races" ranks as one of the foremost contributions to science that has appeared in this or any other generation. Certainly there are few works that point more plainly to scholarly ability and high literary attainments.

Besides his special researches along the foregoing lines, Dr. Woodruff has given much thought to the practical side of medicine and surgery, and as may be supposed from the essential duties of a Major and Lt.-Colonel in the U. S. Army Medical Service, he has had a rich experience in every department of medical practice under conditions that have offered unexcelled opportunities for observation and study. So Dr. Woodruff brings to his editorial work a broad and comprehensive grasp of medicine and medical affairs that will enable him to appreciate—not alone the practical needs of the busy physician—but also the questions that specially interest him. A facile writer, with a style forceful, direct and free from self-consciousness, Dr. Woodruff can be relied upon to discuss topics of current or contemporary interest in plain language, devoid of mannerisms or unnecessary verbiage. Although the readers of American Medicine have enjoyed contributions from Dr. Woodruff's pen for many years, the new arrangement will insure a great deal more material written in his peculiarly lucid, terse, yet happy vein. Those charged with the direction of American Medicine count themselves lucky indeed that they have been able to secure the services of this able and scholarly gentleman and physician.

"The Modern Hospital" is the name of a new publication that will be greeted by many medical men with general satisfaction. The hospital field is one of the few remaining that can claim no special literature, for while occasional articles have appeared from time to time in different journals on topics connected with hospital administration, etc., there has been no attempt to place the multiple problems pertaining to the modern hospital on a definite basis as a distinct branch or department of medicine. That the remarkable development of hospitals, sanitariums, dispensaries and special institutions for the care of the sick has reached proportions that make questions bearing on their organization, administration, and general conduct, among the most important that confront the intelligent public as well as the medical profession, cannot be denied. Hospital management has become a science calling for exceptional executive ability, a broad medical training and experience and an extensive acquaintance with humanity that permits the ready recognition of the abuses no less than the uses of humane institutions.

It is because we feel that *"The Modern Hospital"* will do much to emphasize the foregoing and demonstrate the importance of bringing special knowledge, intelligence, experience and aptitude to the problems of hospital organization and administration, that we welcome it so heartily. No publication of recent years has been so needed, and judging from the first number few publications have been started under more auspicious circumstances.

Beautifully printed, on splendid paper, with ample illustrations of appropriate character, *"The Modern Hospital"* may be expected to take up the comprehensive consideration of the building, equipment and administration of hospitals, sanatoriums and allied institutions, and faithfully serve the interests of those connected with their medical, surgical and

nursing staffs. Particularly noteworthy in this first issue are valuable articles from the pens of Dr. A. J. Ochsner, Surgeon A. W. Dunbar, United States Navy, Dr. S. S. Goldwater, Mr. E. F. Stevens, of Boston, Dr. James G. Mumford, Dr. Herbert B. Howard, and others. These articles are well illustrated and as one might have expected the whole magazine is well edited and most interesting throughout. That the publication will be conducted in a practical manner from the standpoint of a thorough acquaintance of everything that pertains to a hospital is guaranteed by the names in the list of editors. The editorial staff as announced is composed of Henry M. Hurd, Baltimore; Frederick A. Washburn, Boston; Winford H. Smith, Baltimore; S. S. Goldwater, New York; James G. Mumford, Clifton Springs, N. Y.; W. L. Babcock, Detroit; John A. Hornsby, Chicago, with O. F. Ball, of St. Louis as managing editor.

Without the slightest intention of being fulsome in our commendation of this great undertaking, we cannot refrain from expressing our sincere admiration for this publication and the untiring efforts that were so evidently employed in the preparation of its initial number. Knowing those at the helm we are certain that following issues will maintain or surpass the standard established by the one before us. That the hospital situation will be immeasurably improved by this great journal that comes at such an opportune time, there can be no doubt. And because it is so eminently fitted to accomplish its avowed purpose, we look for it to do a great deal more than even its sponsors anticipate.

School for Health Officers.—Beginning this fall Harvard University and the Massachusetts Institute of Technology are to conduct conjointly, a School for Public Health Officers. The facilities of both institutions are to be placed at the service of students in the School and the Certificate of Public Health (C. P. H.) is to be signed by both President Lowell and President Maclaurin.

The fundamental object of this School is to prepare young men for public health work, to fit them especially to occupy administrative and executive positions in their communities such as health officers or members of boards of health, as well as secretaries, agents, and inspectors of health organizations.

It is recognized that the requirements for public health service are broad and complicated, and that the country needs leaders in every community, fitted to guide and instruct the people on all questions relating to the public health and sanitation. To this end, the instruction of the new School will be of the broadest possible character. It will be given by lectures, laboratory work, and other forms of instruction offered by the special facilities of both institutions, and also by special instructors from national, state, and local health agencies.

The requirements for admission are such that graduates of colleges, or technical and scientific schools, who have received adequate instruction in Physics, Chemistry, Biology, and French or German, may be admitted to the School. The medical degree is not in any way a pre-requisite for admission, although the Administrative Board strongly urges men who intend to specialize in public health work to take the degree of M. D. before they become members of the School for Health Officers.

The Administrative Board which will conduct the new School is composed of Professor William T. Sedgwick, of the Massachusetts Institute of Technology; Professor Milton J. Rosenau, of Harvard; and Professor George C. Whipple, of Harvard. Professor Rosenau of Harvard, who is the Director of the School has been the moving spirit in this new undertaking and his broad experience in public health work qualifies him especially for placing the enterprise on a most efficient and practical footing. Neither the public nor the profession realize as yet the far reaching importance of this School but as its benefits are understood and its possibilities are recognized, Dr. Rosenau's efforts will be appreciated at their true worth. It is fine that there are men who can see the needs of the hour so plainly and are willing to work so hard to meet them.

Editorial Mendacity.—Can the profession have any deep or abiding respect for an editor who uses the pages of the publication entrusted to his direction, to defame, villify and libel those who happen to become objects of his animus? We doubt it, and when the Editor of the *Journal of the A. M. A.* goes out of his way to attack a publication that is doing as much as American Medicine is to serve the interests of the medical profession, he deceives no one. The motives that actuate him are plain, and the more he resorts to untruth and falsehood the more he divorces the respect and confidence of honest men. Such a man can be safely left to his own devices, for never was there a time when he who continues to play the Ishmaelite was more certain than he is to-day of becoming sooner or later a pariah. No man can wilfully start out to injure his fellowmen and cultivate hatred and ill feeling toward those who differ with him on controversial matters without hurting his cause. Decent men never seek to promulgate their opinions or win acceptance of their views by vituperation and falsehood. Consequently when the Editor of the *Journal of the A. M. A.* insults the group of earnest physicians who have been striving for several years to make American Medicine one of the foremost medical journals of the country, by stating that "it is published in the interests of its advertisers," he injures himself more than anyone else. The medical men who are using every effort and every dollar of income to develop this publication are proud of its advertising patronage. Advertisers are keen judges of the worth of a medium and if American Medicine was not as widely read as it is, and by the foremost physicians of the country it *would not have the advertising patronage it has.* On the other hand if American Medicine was not giving its readers the service it is, if it was not live and full of valuable material from the pens of the best men, and finally if its reading pages were not "as clean as a hound's tooth," *it would not be read as widely as it is by thousands of American physicians* from one end of the country to the other.

We believe American Medicine, its ownership, its editorial staff, its editorials, original articles, etc., and its advertising pages furnish the best possible answer to the infamous statement of the self impeached editor of the *J. A. M. A.*

Depopulation in France.—The report of Lannelongue, issued some months ago, on the question, serious to France, of depopulation, is not without interest to American sociologists. Lannelongue pointed out that the low birthrate, as indeed was well known, was the sole cause, as there was practically no emigration, French mortality was the lowest in Europe, and there was a notable immigration of fertile families. While there were 1,000,000 births in France in 1870, in 1909 there were but 770,000; the birthrate in fact was by far the lowest in the world. If a French wife was as fertile as her German sister, there would be an annual gain of 500,000 in the French population. The disadvantages of depopulation were stated to be diminution in military power, and colonizing, in maritime power and foreign commerce, a lowering of the influence of the French language, a fall in labor and its products, a diminution in patriotism, morality and the feeling of solidarity, diminished agricultural output, and, concludes Lannelongue, a falling off in esthetics. As to the causes, the author cited scientific and sociological ignorance on the part of parents, celibacy and late marriage, the iron French laws of inheritance, individualism, feminism, too many government employees, taxes and the high cost of living, morals, literature and cheap politics (*cabotinage*). As remedies, are proposed education in parenthood, the suppression of selfishness and avarice, removing the obstacles to fecundity, doing away with useless and verbose commissions, imitating the customs of fertile peoples, and generally in cultivating common sense and sanity. Efforts should be made to raise the birthrate among government employees, the most sterile class of all, and to help, by giving something more than kind words, all families of more than four children.

Who Shall be F. C. S.?—The fear expressed in certain timid quarters that some restriction may be imposed on the reckless surgery of men whose skill and diagnostic

ability are looked upon askance by their confrères, by the care to be experienced in conferring the new honorary title of Fellow of the College of Surgeons, is, we hope, to be thoroughly justified. That the honor will be refused to any surgeon really worthy of it is in the highest degree improbable, and, on the other hand, that it will be carelessly conferred upon incompetent applicants is hardly more likely. We have every confidence in the original holders of the honor; and whenever it is accorded in the future, whether by invitation or on application by a candidate, there need be no fear of carelessness or favoritism. The time is ripe for action of this kind; there will be no danger, as there might have been, say, twenty years ago, of men acquiring the coveted distinction solely on account of great technical skill, while their personal characters left much to be desired. In times past we have produced, in spite of unavoidable handicaps, a remarkably high average of surgical skill and personal endowments; with our present advantages, however, we are beginning to lead the world in the surgical branch of medical science, and in order that perfect confidence may be felt in the proper men, it is well that the few black sheep be indicated, even if in only a negative manner.

Teachers as Mothers and Vice Versa. — A vast deal of ink has been spilt over the suspension of a teacher who had given birth to a child and much tearful sentiment, as was to be expected, has been shed over the holy function of motherhood; all of which seems to us to be beside the mark. The School Board made a rule, and those who violated it did so at their peril; the issue is perfectly plain. We are prepared to admit that mothers make the best teachers of young children, although there is much to be argued on the other side, including the experience of ages. We are now and then somewhat too prone to suspend or violate laws which were made after due consideration and which, after all, are laws. Those who oppose the conferring of the suffrage upon women have a very strong argument in this constant interjection of sentimental consideration of a weaker sex into questions which should be decided strictly upon practical, asexual and impartial grounds. If the rule is bad or unfair, revoke it and make another; but, in the flood of newspaper letters upon this subject, that suggestion has not been made. As to childbirth, lactation, and the early care of children, they interfere absolutely, not only with teaching, but with everything else; Nature has made no exceptions in favor of teachers. If mothers are to teach, some arrangement must be made by which they can retire from time to time to carry out the principal function of woman; it seems fair to other teachers and to the public that salaries should be suspended during these important intervals. These motherly teachers, or teaching mothers should be the first to suggest this arrangement and not lend themselves to any unjust—nay, plainly wrong—waiving of a plain rule to which they gave assent when taking up their work.

A Cure of Spondylose Rhizomelique. — Osler states positively that spondylose rhizomélique is merely a variety of arthritis deformans and should not be described as a separate disease. This being the case, there seems to be reason to hope that a cure of other varieties of this usually intractable affection may be effected just as the kind mentioned was permanently relieved by electric gymnastics according to the system of Bergonié, Labbé, Laquerrière and Nuytten, according to *Quinzaine thérapeutique* for March 10, 1913, and presented to the Société médicale des hôpitaux on February 24th last, a man of vigorous physique who, while suffering from spondylosis, was also attacked with obesity which attained a degree that rendered him quite helpless. Under an antifat regimen and the Bergonié system of electric gymnastics the patient's weight was reduced from 102 to 86 kilograms, (about 204 to 172 pounds. At the same time the muscular system developed normally, pain was relieved, the spine resumed its normal motility, and the patient became once more a vigorous man. The practical result was all that could be hoped, for the patient, who had been helpless for over a twelvemonth, resumed his work as a porter.

ORIGINAL ARTICLES.

DIATHESES.

BY

A. JACOBI, M. D., LL. D.,
New York City.

Late President of the American Medical Association.

When looking for a contribution to the present issue of American Medicine, I was struck with the absence of any topic with which I might presume, or be presumed, to be more familiar than my neighbors. Indeed, this consciousness of mine of their superiority prevailed upon me many years ago to withdraw from circulation my books, both small and big. They are "out of print." I found they were not indispensable, as for instance Homer, or the Bible, or Faust, or the cellular pathology, or the Gettysburg address, or Schurz—and their places were readily taken by the writings of contemporaries more erudite, or profound, or authoritative. Still, there are subjects which are always so replete with interest and beset with difficulties, and crying for illustration, that I dare risking commonplaces and the repetition of facts which are known or should be known to every one of my peers.

Professor Taft is reported to have once said that "the Lord takes care of drunkards, children, and the United States." The latter is still in existence, drunkards are not all dead yet, and of children not so many alive as we might wish. On the contrary, a large percentage dies in consequence of a certain predisposition to succumb to fatal disease even under the most favorable external circumstances. It is not necessary to refer to the fact that of one hundred deaths under one year, 2.2 occur through injuries at birth,—10 on the first day of life, 25 during the first two weeks, 34 during the first month. But circumstances are far from "favorable." Every baby is in danger, sometimes preposterously so. For instance, its very mother, though herself protected by vaccination, may give smallpox to her baby. Of that, forty years ago, a Berlin epidemic furnished examples. This is only one instance of an infection which may strike a baby though its mother is seemingly or actually well. Another example is tuberculosis. At no time of life is tuberculosis so frequent and so fatal as in the first and second years. Looking for an explanation, there are still those who, indeed, charge the maternal blood with the possibility of a direct contagion, or at least with the communication of a powerful disposition.

But the object of my remarks is not to be the consideration of acute cases, but of chronic and persistent deterioration.

Why is a baby strong or feeble, resistant or infirm? Heredity and family disposition, before surroundings have had an opportunity to exert their influence, decide the nature of its body and physique. Size and weight, the features one and all, the color of the eye, the muscle, the heart and circulation, the glands with their internal secretion—are determined by inheritance. Thus, many babies are weakly without ever showing positive symptoms of disease. This is a subject to which a year ago, I directed the attention of the American Medical Association in a part of my inaugural address. I claimed that "the arrival of unhealthy, sick, and contagious children is a misfortune to the newcomer, to his parents, and to society. Therefore a clean bill of health should precede matri-

mony. The clergymen who refuse to marry couples without it are good citizens, and the health departments are bound to see to it that contagious—mainly sexual—diseases should be reported, watched, and cured. Nor is this all: hereditary influences propagate epilepsy, idiocy, cretinism. Persons thus affected must not be permitted to propagate their ailments." That is why at the present time ten of our states have passed laws which allow, or enforce, the sterilization of persons who by transmitting their ailments to their offspring, endanger the health of society.

In connection with that subject I quote a few lines from my inaugural address (June 8th, 1912, *Journal A. M. A., New York Med. Rec., N. Y. Med. Jour.*)

"Heredity, degeneracy, or incompetency are often caused by social influences. Financial temptations or necessity make women select not the strong and healthy men, but the old and rich. Their children are having less and less vigorous offspring. Rich and profligate boys spend their sexual powers on prostitutes, and save little for possible babies. The lack of children in American families is not always due to voluntary abstinence.

Modern industry reduces the vigor and vitality of the men, and woman and child labor exhausts the mothers and fathers of the future and present generations. Thousands of men are prevented from contracting marriages by pecuniary want and the impossibility of satisfying their sexual hunger except with prostitutes. That is true not only with regard to factory hands, clerks, and employees generally, but to the picked men of the people. Army and navy, the millions of soldiers and marines of all the nations of the globe, withdraw the vigorous men from natural modes of living and labor and propagation, and prevent them from marrying in time; and wars kill and cripple and deteriorate the best muscle of the land. Only the 'weaklings' are left, and their offspring."

"The history of the newborn is pictured on their bodies. Pinard weighed numerous newly born babies. Those born in poverty were ten per cent. less in weight than the others. Many were premature, their mothers injured, and sick afterward, and without milk.

A decided physical inferiority at birth is a common occurrence amongst the poor and starved. Ballantyne experienced in the Fulham Infirmary as high a percentage as 21.9. They are called 'unfit' when born of overworked, underfed, and neglected women. Their number is much smaller when their mothers, while poor, are looked after long before the uterine life is terminated or when circumstances, financial or sanitary, are more favorable."

To follow all the roads that lead to unsoundness and debility of the young, would demand endless anatomic and biologic descriptions. A few facts may suffice here.

The infant tissue is imperfectly developed. The intima of the blood vessels is pervious and fragile; meningeal hemorrhages in the newly-born from the superficial intracranial blood vessels are frequent; in puerperal sepsis hundreds of petechiae cover the pericardium, pleura and peritoneum. The small and large hemorrhages of infantile scurvy are well known. The mucous membranes are pervious to such an extent that bacteria and toxins penetrate the intestinal tract without leaving a trace; catarrh of the intestines, and still more that of the nose and pharyngeal cavity, is quite common. The lymphatics and lymph bodies of the mucous

membranes of the mesentery, of the nose and bronchi, swell in consequence and open the road to cocci and bacilli. The latter may be those of tuberculosis, but we have gone too far when we have followed Escherich who looked upon all the cases of adenitis on the neck and below as directly tuberculous. On the other hand, their mere swelling and the interference with the circulation of the lymph and the blood injure the general health. The skin sympathizes with the abnormal conditions. The sebaceous follicles—mainly of the nose and forehead—swell and secrete at an early time; eczema, impetigo, edema of the upper lip and cheeks accompany conjunctivitis and external otitis. The changes of the epithelia and those of the mucous membranes affect the submucous tissue of the pharynx, nares and respiratory organs. The chronic bronchitis and peribronchitis which I have described in their diagnostic connection with and discrimination from alleged pulmonary tuberculosis, and the frequency of lobular pneumonia in the very young are the results. The hypertrophy and adenoid degeneration of the nares and the pharynx are parallel results which may terminate in the local absorption of cocci ("tonsillitis") and bacilli; most of them are avoidable by instituting local irrigation and cleanliness. In those infants and children who together with scrofulous swellings develop early nervous irritability, genuine asthmatic attacks begin soon with or without *"pavor nocturnus,"* the frightful night terrors. In many the asthma of later years begins at this time, but it is only our specialistic tendency to restrict localization of study and treatment which has led some of us to believe that asthma is always curable by intranasal cutting, scraping and burning. The scrofulous symptoms alluded to are at no time—or at almost no time—local lesions; they become early, if they are not so primarily, constitutional affections. They were appreciated, though not always understood to their full extent, centuries ago. The scrofulous acridity (Schärfe) of Hufeland, the inflammatory diathesis and the lymphatism of Virchow, the inherited and primary "lymphatic state" of Paltauf, and the exudative diathesis of Czerny all mean about the same thing. All of them, unwillingly or unwittingly, approach the point of view of Hippocrates and the humoral pathology so fiercely attacked by the sages of solidarism, and the tendency of the French of the last century who openly proclaimed, contrary to the epoch making work of Morgagni and their own Bichat, the existence of more than a single diathesis. Indeed, the victorious onslaughts of Virchow on Rokitansky and on his "crases" and "dyscrasias," and the utter temporary defeat of the latter may gradually become a mere history of the battle of two gods, both of whom were right, but both of whom lacked however the knowledge of internal secretions which to-day reconcile humoralism and solidarism. Nor can we say that a single theory will ever solve all our problems. We are not yet prepared to classify and correctly place arthritism, infantilism and the eosinophile and the hemophile diathesis.

The latter ("hypereosinophilia") which consists in an excessive presence of eosinophile leucocytes has been claimed as a valuable symptom of the lymphatic, or as it is called by Czerny and others, the exudative diathesis. It is one of the most positive proofs of the present return to humoral pathology. Benjamin and Rosenstern met with 10 or 20, even 30 per cent. of

leucocytes granulated with eosin in lymphatic infants one or two years old; mainly however when such lymphatic children exhibited many cutaneous manifestations. Still it is admitted that some lymphatic infants may have no such eosinophilic predominance, and that on the other hand 4 or indeed 8 per cent. are often met with in normal babies a few weeks old. Evidently we have neither ascended nor descended into the realm of the often pretentious exclusive laboratory diagnoses. Least of all have we succeeded in proving as Bouchard hoped to do, that chemical facts and figures suffice for any independent explanation of obscure predispositions. The fight against the at least partial justification of the humoral pathology would have been more successful if the influence of food in the preparation and nature of blood had been considered to its full value. An old philosopher of the nineteenth century, Ludwig Feuerbach, knew that quite well, when he stated that man is what he eats. For decades some medical and lay fanatics have preached vegetarianism with mostly as little knowledge and conscience as our modern antivaccinationists and antivivisectionists. It was reserved for modern physiology and biochemistry to differentiate the component parts of foods, their proteids, fats, carbohydrates and salts, together with their uses and abuses, their indications and contraindications, their compatibilities and incompatibilities. Modern pediatrists have utilized more than others, the lessons to be drawn from the modern increase of knowledge. Mainly in Germany have they referred to the injuries due to improper, or excessive or definite feeding. Indeed their newly formed word "Nährschaden" has influenced foreign nations to such an extent as to add that new and less picturesque than superfluous term. "Harm by ill feeding" or "food injuries" is English enough, may look less erudite, but is quite intelligible. Maybe it is here in order to remind my readers of the danger connected with thoughtlessness in calculating the value of foods by "calories" only.

Many of the feeble babies who are either merely retarded or actually diseased may be subsumed under a single heading; for many of them are merely *imperfect*. The frightful myxedema means only the absence from the circulation of thyroid secretion; the excessive nervous irritability with convulsions signifies the failure of the parathyroids and the lack of calcium. Thus, a special single article added to the defective nutrition may restore the individual to perfect health. It is to be hoped that improved knowledge will teach us how to feed successfully congenital asthenia, myasthenia and myotonia. Indeed, even the worst cases of early rachitis are amenable to nutritional therapy. Besides proper hygiene, that is diet and air, phosphorus, in substance, improves cases of craniotabes, and is a valuable adjuvant, as I have repeatedly taught these forty years, in the treatment of tuberculous osteitis. In addition I should say: it is not the fault of codliver oil that it seems to have been forgotten by some who follow other gods exclusively.

Mere retardation of a baby or a child may be, and frequently is the result of starvation. The younger the individual, the larger should be its proportionate supply. Huebner demands for a day 100 calories for two pounds (one kilo) of baby weight of the very young; 80, at the age of one year: 60, for a schoolchild: 40 for the adult. For those infants who exhibit scrofulous symptoms at an early time, Budin admits only 85 in place of 100. The

usual articles of infant diet are inappropriate in exceptional cases only. Altogether however there are some rules which should be minded when we want healthy infants. Breast milk protects almost every newborn against dying before the termination of the first year. Now and then only it fails in a case which requires special study. It is understood there should be no overfeeding nor underfeeding. Many a baby is harmed by too frequent nursing. I feel perfectly sure that an interval of three hours is preferable to one of two. When the large supply of iron of the infant liver is exhausted about the sixth month, the addition of fruit and cereals may become indicated. Artificial feeding, even the best, kills three times as many infants as breast-milk would have saved. Practitioners who order undiluted and raw cow's milk as the proper food for a baby succeed sometimes in proving that an occasional baby stands anything. But after all, though alive, it may become invalid and sickly. That the proper dilution of milk is by cereal decoctions is at last appreciated and practiced even by those who still print mere "water" in their many books—they also begin to add sodium chloride to cow's milk. After the first half year, the amount of cereals should be slightly increased, the lack of calcium and iron not disregarded, and meat broth added. With all that those are familiar who want to be. For the treatment of infants good will is indicated, like brains. One fact should be remembered—that children of early age, underweight and thin, should not be fed predominantly on proteids, but rather on vegetables. The same holds good for those who exhibit rapid mental fatigue or exhaustion or, while intelligence is fair, talk late and cry often for no apparent reason except discomfort and lassitude.

Nor should it be forgotten that muscle is more readily formed through cereals, (diluted starchy food in general) when combined with moderate exercise. That means playing in congenial company, but never the systematic and overdone gymnastics still indulged in by some of our schools. With the development of muscle, the general circulation is improved, together with the functions of digestion and of the brain.

Scrofulous symptoms belonging to the nose and pharynx do not always require operations. Many of these can be avoided by regular (two daily) irrigations of the nose from a glass cup, the head being thrown back and the mouth slightly open, with a warm saline solution. The fear of ear complications is not justified provided no snuffing up is permitted and the narrower nostril is preferred for irrigation. The solution will readily pass the pharynx and out of the mouth, sometimes into the esophagus, which is no harm. The Waldeyer lymph-ring is the part which requires that irrigation more than the tonsils whose importance as an absorbing organ is greatly over-estimated. The same practice of irrigating should be continued after an operation has been performed, in order to derive from it its full benefit. Some of our specialists neglect that. Daily bathing of the healthy child is indispensable. The weakly child, however, bears no cold water until improvement has taken place.

Drugs are very valuable. The normal heart of the healthy child is comparatively large and strong; that of the weakly however has either the rapid or the slow—frequently irregular—contraction of the in-

competent myocardium. A child of four or six years will take one minim of a good fluid extract of digitalis twice a day, after meals, for six months in succession, without a trace of cumulation. It may be taken simultaneously with one-hundredth of a grain of arsen. trioxid. This is for the soft tissues of the body the very best nutrient, and may be continued many months in succession. I wish my readers to understand that I am in earnest in regard to the recommendation of this remedy with which I have succeeded—I may say, infallibly—these sixty years in many untold hundreds of cases of the underweight and feeble young.[1] As a stimulant, strychnine does not deserve the universal applause with which it meets. Still, a discriminating physician will find many indications, except in acute or subacute myocarditis where it is forbidden.

There is a frequent connection between the chronic weakness of an infant and child and constipation. It may be the result of the primary debility which causes an undue inability of the intestinal and abdominal muscles, with hard feces and accumulation of gas. Without mentioning other causes of constipation I remind my readers only of that which is exhibited by rickety infants after the second or third month of life. Here it is caused by the morbid incompetence of the intestinal muscle. There are, however, other cases of constipation which are not secondary to a disease but rather primary or congenital. I speak here of what I have described as "congenital constipation," first in the second volume of the *American Journal of Obstetrics and the Diseases of Children* in 1869, and several times since in books and pamphlets and once annually in lectures to students.

This congenital constipation is not the result of persistent incompetency of function, but of the permanence of the anatomy of the very long fetal colon. "The consequence of the long colon being crowded downward by a narrow abdomen, large liver, etc., into a narrow pelvis, is a number of curvatures (2 or 3) instead of the one sigmoid flexure." Thus it happens that the downward movement of the meconium, and afterwards of the feces is interfered with and obstinate constipation is the result. This constipation, contrary to what occurs in the second or third month of life when rachitis begins to weaken the intestinal muscle, is congenital, mechanical and not complicated with any other functional change, and occurs in the newborn healthy baby at the breast. The diagnosis should be made from the fact that even the normal breastfed baby is reported to have been constipated from its first day. It remains so until the fifth or seventh year when anatomical conditions become more normal. When it is not recognized, the outcome may be grave. The descending colon, either in its whole length or in limited localities, may become enlarged, sometimes to such an extent that the diagnosis of Hirschprung's disease (congenital mega-

[1] In connection with this praise of arsenic I may, for the hundredth time, be permitted to refer to its value in chronic pulmonary, and other, tuberculosis. I rarely treat a case without it. It has, however, become fashionable, almost a fad, to boast of the neglect of medicaments, and to eulogize, to the exclusion of experience and rational thinking, nothing but food, rest and air. These more than fifty years I have employed arsenic day after day, year after year, in chronic tuberculosis, and these twenty-three years in combination with guaiacol or preferably guaiacol salts (the latter since the extortionate "rights" of the skin-flint patentees terminated a few years ago). That I use camphor, opiates, digitalis, agaric acid and what not, in their proper places, I need not add. Sanatoria, whose knowledge of therapeutics dates back half a year or less, are—well—are behind the times.

locolon has been made. This, however, is very rare, my "congenital constipation" is very frequent. I am certain that in fifty years I have seen a thousand cases. The question of an operation must not come up if the condition be recognized. None of my cases when observed early, has ever undergone one. Regular, that means daily, enemata, sometimes—but sometimes only—accompanied with a weekly or bi-monthly purgative extending over years, are sufficient corrections. When the babies or children are not so treated, or the diagnosis is made late, they suffer from sluggish circulation, indicanuria, "autointoxication" and other symptoms of indigestion, and many from nervousness, hydremia and weakness. Indeed many a case of infant "hysteria" may be corrected when the original cause is recognized.

I have referred to this form of constipation because its cause is not appreciated at all in the literature of constipation.

THE NURSING OF THE INSANE AND RESEARCH IN PYSCHIATRY.

BY

BAYARD HOLMES, M. D.,

Chicago, Ill.

It is very difficult to use a particular function of the service as an index of the inefficiency of that service, without arousing the criticism of the particular class under consideration. At this time I would, however, call attention to the low grade of the nursing in the institutions of the insane in order to enforce upon the mind the necessity of changing the motive of these institutions from confinement and custody to research and cure.

Here we are at the beginning of the second decade of the twentieth century and the insane are suffering of diseases of unknown origin; they are confined for the safety of the sane; the state is squandering forty per cent of its gross budget on confinement and custody and not a dollar is appropriated in any one of the forty-eight states for serious research into the causes of the insanities and the possibilities of cure and prevention.

Are the causes of the insanities more sacred from modern scientific research, more secure from discovery by human cunning, than those of the Black Death, of the malaria of the Campagnia, the sleeping sickness of the Congo? Is there hope in research for the locoed cattle of the plains, but no hope for the deluded quarter of a million of citizens filling our mad-houses, coming from every walk of life, from every age, from every social condition? Is it profitable to expend under the Department of Agriculture $16,000,000 a year in studying the diseases of cattle, of wheat, of corn, of elms, of chestnuts and of carp, and yet unprofitable to expend an adequate sum in seeking for the diseases which underlie the insanities of our children, our brothers and our neighbors?

There was a time when the general hospital was the retreat for the helpless incurable, as the insane asylums are now for the hopeless deluded. The condition of the Hotel Dieu of Paris a hundred years ago, before there was any safety in surgical maneuvers or hope in serolytic examinations and treatments, is parallel with that of the great institutions for the insane which are dotting every state and are the pride of the philanthropic and the spoil of the cheap politician. It was through the influence of the researches of Tyndall, of Pasteur, of Lister, of Rosenbach and of

Ogston, that erysipelas, suppuration and hospital fever disappeared, and the hospitals of the world became as safe for all surgical operations as the huts of Russia had proved to be in the hands of Pirogoff during the Crimean war.

Probably no part of the revolution in the general hospital practice was more radical and fundamental than that of the nursing. With the hospital for cure came the professional nurse. The every-day ceremonials of nursing so ostentatious and striking to the layman, were each of them established by research, by demonstrations, by argument, and by painful discipline. A whole generation, a whole army, it seems, of practical and experienced nurses, had to be driven out of their intrenchments in the hospitals of the 1870's and 1880's, before these necessary ceremonials could be faithfully and reliably instituted and conscientiously carried out. The professional nurse is now a necessity to the hospital and a fixed and recognized member of our social structure.

The mad-houses of the forty-eight sovereign states of this republic are now, by grace of legislative hypocrisy, almost universally termed "state hospitals," but they remain institutions for legal confinement and segregating custody. In no sense are they hospitals for cure, and no allegation which the naïve might make would be so emphatically and superciliously denied by the superintendents of these institutions as that they were hospitals for "cure."

It is absolutely necessary to resort to the concrete; the abstract is pointless. In spite of the risk of giving local offense and arousing local criticism, I would present this important lesson. In the State of Ohio, there is a state hospital which underwent a revolution five years ago on account of the condition of its nursing. A wily newspaper man in a metropolitan city was committed to this institution in regular judicial form. He made notes of his observations in the court of commitment and his subsequent experience in the "hospital" in which he was confined. Among other things he saw insane men cruelly "beaten up"[1] and after these beatings-up, secluded for days from the doctors by the nurses, who held that discipline in the ward was paramount to all other considerations. He saw a woman nurse twist the arm and shoulder joint of a recalcitrant female patient until she fell to the floor in agony. He noted many other atrocities which came out in the metropolitan press as a part of his lugubrious diary. This reporter was not insane; his legal commitment was not justice; the state hospital to which he was committed was not a hospital; the nurses were not nurses; the investigation was not undertaken to better the condition of the insane or remove a scandal from the public service, but it was done to furnish occasion to divert the patronage of the institution into other channels and secure the spoils to another political gang. No sooner did the diary begin to appear in the newspaper than the nurses began to disappear from the hospital like rats from a sinking ship. The Board of Trustees was horrified! The medical staff was investigated and re-organized, but the same sort of nursing continues. The same "beating-up" discipline prevails.

In this ancient castellated fortress of the style of 1855, the state of Ohio legally con-

[1] This is a technical term not found in this sense in any dictionary, and used only among the nurses and attendants of the insane. It consists of an attack upon a patient by two or more nurses; over extension of the head, knocking down with fist on the lower jaw, kicking the abdomen and stamping the chest.

fines 1,300 of its citizens of all ages and all estates, in a most inflammable and illy constructed building, in close proximity to a great city, under the care of six physicians, two of whom are burdened with administrative duties, and ostensibly nursed and cared for by more than 200 different nurses, called attendants,[1] who are paid from twenty to forty dollars a month. The total expense to the state of these 1,300 insane citizens, is about $250,000 a year, of which $65,000 was paid in one year for the wages of 194 employees of all sorts and kinds. At the same time $134 was expended for books, $1,004 for stationery, $1,362 for drugs, and $707 for other medical supplies, including one compound microscope. In his report, the new superintendent of this institution lays great weight upon the clinical uses of this microscope, and of the recently established clinical laboratory.

However, during the summer of 1911, a citizen for many years of an adjoining county was brought by its sheriff a committed lunatic to this state hospital, tied hands and feet to his own barnyard gate with many ropes. With fear and trembling the sheriff and his big-eyed posse carried the prostrate man from the automobile which served as an ambulance up the short stairway and laid him down upon the tessellated floor of the examining room. As the attendants began to untie this patient, the sheriff and his fearful posse stealthily vanished. The ropes were removed, the man was taken without disturbance to the bathroom, where he was undressed and bathed, his wounds were dressed and he was properly attired and placed in a ward. There he soon became a model patient. One morning, however, before he had dressed, he perched himself upon his table and began a fervent exhortation to an imaginary audience disposed about the opposite side of his bedroom. His attendant nurses called him down, but he proceeded unmindful of their orders. They then went in, grabbed him from behind, over-extended his head, threw him upon the floor, pounded him under the chin, punched him under the ribs, stamped upon his abdomen, and beat him up generally, according to a method well-recognized by these nurses (?) In two weeks he recovered of the beating and also of his insanity and in due time he was discharged, completely recovered. His attendants, or nurses, are still in that same ward, drawing from thirty to forty dollars per month from the state, and collecting twice that much from the tips and perquisites wrung from the helpless and agonized friends of the legally committed insane.

These turnkeys are in control of the custodial institutions. Their philosophy of nursing is the prevalent one. In some of the states that have entered on the civil service bondage, they are impregnable and cannot be discharged until the superintendent has filed a writ containing the charges of misconduct and all the evidence upon which these charges are to be sustained. All new nurses coming into the service must soon conform to the customs, the ethics and the discipline of these old stagers. The patients in the ward do the services which the nurse should be proud to perform. It is below the dignity of such a nurse to clean up an untidy patient or to show that prescience which anticipates the untidy act. By their bossy attitude toward the helpless patient, by their un-

[1] A peculiar method prevails in hiring and paying the attendants. They fill out papers on taking the job but do not sign their names. They are paid in gold but do not sign receipts!

willingness to take the most unusual and unpleasant tasks upon themselves and perform them as a nurse's privilege and duty, all service to the patient is made servile and thus robbed of its humane motive and its professional dignity. The physicians number hardly one-fortieth as many as the attendants and they are powerless before the nurses' entrenched position. This is a lamentable condition and it is maintained not alone by the overwhelming majority of the attendants, but by the far more lamentable fact that the physicians are appointed not for the serious object of cure, but to hoodwink the public and the friends of the insane into the belief that the spirit of the state hospital is not for confinement and custody but for study and cure. If the doctors were numerous enough and if they were serious enough in the investigation of the physical conditions of the insane, in the application of such therapeutic measures as are already known, and in the discovery of other measures which a knowledge of the condition of the insane might give, such a revolution in the nursing of the insane could be instituted, as would make as great a change in the state hospitals to-day as occurred in the general hospitals of the world with the advent of Listerism.

To my mind there is not one in all the long list of devoted servants of man, so worshipful as the faithful nurse. The miner in the stillness, the loneliness and the overpowering darkness of the roots of the mountains; the diver in the mysterious labyrinths of the beds of the sea, the hopeless toilers at relentless and tireless machines, the lonely pioneers on the firing line of civilization, the venturous sailors and toiling fishermen, the patient seamstresses and alert weavers, the isolated, benumbed and discredited maid servants, the unclad, perspiring stokers in the depths of the ship and the diamond diggers imprisoned in their compound, are robbed of no whit of their mead of honor by my reverence for the faithful nurse and among nurses there are grades of honor. It is superbly heroic to care for the helpless infant, to wait on the aged to the silent end, to ease the agonies of the victim of cancer until the painless lethargy comes on to stay, but these patients can give the nurse some look of gratitude or speak some word of appreciation. The greatest hero of them all is the faithful nurse of the insane.

The insane rarely show appreciation, but on the contrary the most perverse, malignant and more than bestial ingratitude. The kindest and gentlest attentions are followed by abuse, vituperations and blows. The nursing of the insane requires a fortitude greater than that of the lion tamer, a cunning beyond that of the trapper, a gentleness of spirit exceeding that of St. Francis, a tireless devotion outdoing that of the mother to her first born. To nurse the insane is to fulfill the last and most exhalted function of personal service required by our highly complicated social organism. The nurse of the insane is the personal physical dispenser of the most humane spirit of modern civilization. The rewards of the nurse are small indeed. She has no adequate remuneration and no recognized social position. Her services are unseen by the public and unappreciated by her patients. Not so with the general nurse. The infant is soon nursed to health and a promising boyhood or girlhood. The aged and the victims of malignant disease linger but a short time in helplessness and agony before they win the goal of sleep and rest; but the insane, suffering from

an unknown and hopeless malady, with the most terrible and perverse manifestations, must be devotedly and patiently nursed from year to year, through a relentless succession of the most exasperating, infuriating and disgusting manifestations of the disease, without appreciation, thanks or gratitude, from one decline to another and another still more gruesome and more soul wrecking, until the nurse, robbed of his own zest of life by the horrors of his daily experience and his patient denied the surcease of death, must call on the cold dictates of his sense of duty and the unthinking consolations of an ancestral religion in order to maintain his mental integrity.

How different would it be if confinement and custody were supplanted by research for cure; if the spirit of fateful pessimism among the keepers of the crazy gave way to active criticism, if sordid institution was dispersed by alert progress and scientific research!

SOME ORTHODIAGRAPHIC HEART TYPES.[1]

BY

H. WESSLER, M. D.,
New York City.
Assistant Radiologist, Mt. Sinai Hospital.

Fluoroscopy supplies in the diagnosis of heart lesions, information which is obtainable neither by percussion nor auscultation, namely information concerning the shape of the heart as a whole and of its constituent cavities and also of the great vessels arising from it. In presenting to you a few heart types of clinical interest, I shall dwell therefore on their morphological characteristics as these are revealed by the fluoroscope.

I shall pass over the fluoroscopic appearance of the ordinary valvular lesions as well known to all, only mentioning in passing that as viewed on the fluoroscopic screen such hearts are characterized by a very definite configuration which makes their diagnosis a matter of no difficulty.

In Figure 1 there is represented a heart which at a glance reveals a form which must strike the observer as distinctly abnormal. Not only is it abnormal; it is unique in cardiac pathology. An account of the clinical history of the patient of whose heart this is an orthodiagram is as follows. Patient is a girl of about 13 years of age, the age of puberty. She has apparently been growing rapidly and suffers from a variety of symptoms which one would describe as functional. She complains of headache, usually frontal, has no appetite, often vomits in the morning; she often gets fainting spells and complains of dyspnoea and palpitation on exertion. In addition she has a group of symptoms probably vascular in origin which for the sake of brevity we designate as vasoneurotic.

Physically, this girl is flat and narrow-chested, has signs of visceroptosis probably of congenital origin, a condition verified by bismuth X-ray examination of the gastro-intestinal tract. Examination of the heart shows no abnormality aside from evidence of over action and an inconstant systolic murmur heard at the base or apex.

You will ask, What is the significance of such a heart? From its shape it has aptly been termed a "drop-heart." It will be noted that it is long, centrally and vertically situated in the chest and very narrow; by actual measurement it is smaller by

[1] Read at the meeting of the Eastern Medical Society of N. Y., May, 1913.

several centimeters than is normal for a child of this height.

Whether a hypoplastic heart such as I have just described is congenital or whether it is acquired during the growth of the child is quite undecided. We do know however that it is usually not until the age of puberty that such an organic anomaly makes itself manifest clinically by symptoms of cardiac inadequacy.

For a long time such hearts were clinically associated with the presence of pul-

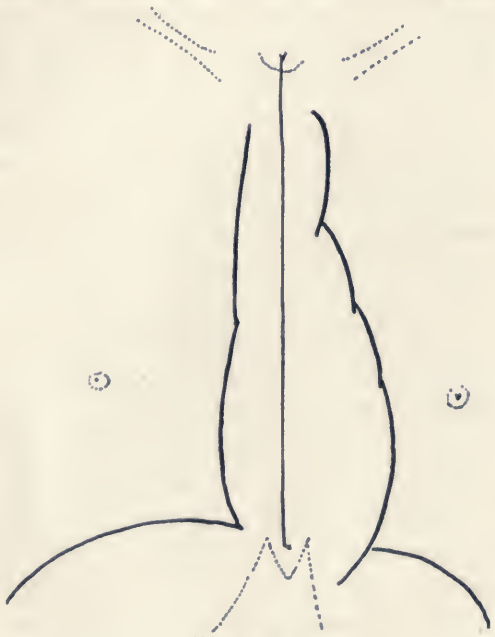


Figure 1.

monary tuberculosis. It would be an error however to attribute to these two conditions any relation in the sense of cause and effect. They are more properly regarded, each of them, as manifestations of a developmental bodily defect. Pulmonary tuberculosis occurs in these cases because the flat narrow chest, in which the apices are poorly aerated is especially prone to tuberculous affection, whose development is further favored by a general inferiority of the tissues, a striking evidence of which is seen in a general atonic condition of the musculature.

This condition of the heart is frequently found in other than tuberculous individuals. It occurs often in the subjects of the various abdominal neuroses, of the functional digestive disturbances in whom frequently the congenitally ptosed stomach, the so-called "fish-hook" stomach is found. But perhaps of most clinical interest is its occurrence in adolescent children such as the one of whom I have given a short clinical history.

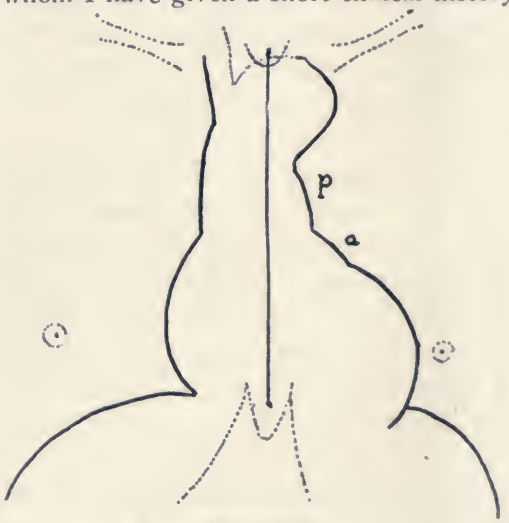


Figure 2.

A train of symptoms such as I have described will properly be a cause of anxiety to patient and physician alike and the question will arise, Are we dealing with an organic heart lesion? I think the finding of such a heart of the drop type may be looked upon with a great deal of reassurance. We may say with some degree of confidence that the symptoms complained of are functional in their origin; that they have acquired prominence by virtue of the increased demands of puberty on a heart which is not quite equal to those demands and that as the child grows up, the balance between the heart and the vas-

cular system on the one hand and the circulatory needs of the body on the other will be satisfactorily readjusted.

I should like to direct your attention now to Figure 2 which represents a heart that differs morphologically much from the preceding. We see here a heart which has acquired a more or less oval shape—a broad rather than a narrow heart. This breadth of the heart has its origin in an enlargement of the left ventricle whether by hypertrophy or dilatation or both will depend on the individual case. The patient of whose heart this is the outline is a man

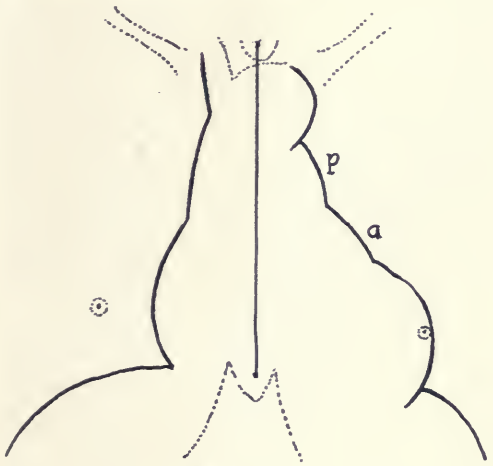


Figure 3.

of 45 years. He suffers for some time from headaches, has frequency of urination especially at night. Physically he presents the usual appearance of the interstitial nephritic, has thickened vessels and marked arterial hypertension. His heart reveals a heaving apical impulse, a much accentuated second aortic sound, no murmurs. It is little if at all enlarged to percussion. The urine is of low specific gravity and contains no albumin or casts. You will observe that here a continued high blood pressure has resulted in a pure left ventricular hypertrophy which is efficient for the ordinary demands of the circulation. By measurement this heart is only slightly if at all enlarged. One year later the same patient presents himself, this time with a new and significant train of symptoms. He complains now of dyspnea and palpitation especially on exertion, suffers from nocturnal shortness of breath and has edema of the ankles. We may infer then that his heart which was previously efficient is beginning to fail.

Have we any indication in the orthodiagram of this beginning failure? You will note on examining Figure 3 which rep-

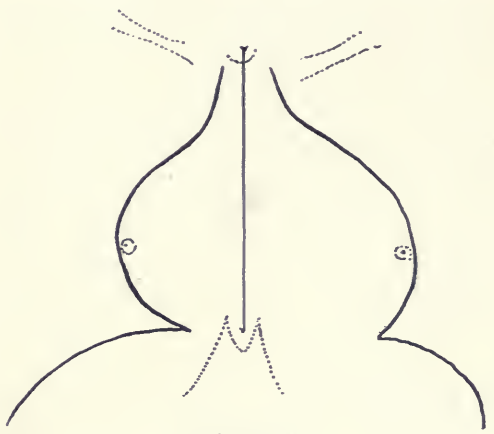


Figure 4.

resents his heart at this stage of his illness, that it is somewhat enlarged to the left, the left border now reaching 9.5 centimeters to the left of the mid-line. But more significant is the change in configuration which has taken place. Owing to the inability of the left ventricle to empty itself properly, a stasis in the lesser circulation has resulted and as evidence of this we detect a distinct enlargement of the left auricle (a) and of the pulmonary artery (p). We have here objective evidence of the failure of the mechanism which in these cases must compensate the arterial hypertension, namely a hypertrophied left

ventricle—evidence which is of decidedly bad prognostic import.

Not infrequently in such hearts as we have just considered, the arch of the aorta and sometimes its branches, under the influence of atheromatous changes and high blood pressure become dilated and can be felt as pulsating tumors in the jugulum and the side of the neck. In such cases a radiographic plate will often show a prominence of the aortic arch and under such conditions a diagnosis of aneurysm of the aorta is likely to be made.

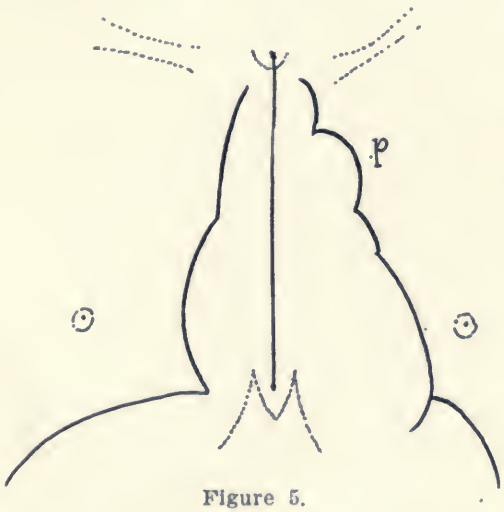


Figure 5.

Such a diagnosis is apt under the circumstances to be an unfortunate one. There is here no question of aneurysm in the true sense of the word but rather a simple dilatation associated with left ventricular hypertrophy. Aortic aneurysm, unless complicated by valvular insufficiency or chronic nephritis is accompanied by a heart of normal size and shape. The presence of cardiac hypertrophy at once suggests caution in entertaining a diagnosis of aneurysm.

Figure 4 is the orthodiagram of a case of pericarditis with effusion. You will observe that the usual heart landmarks have been entirely obliterated and that the heart has acquired much the appearance of a decanter. In differentiating this from the valvular lesions it is scarcely possible to mistake it for a chronic endocarditis with dilatation. It will be noted that contrary to the traditional view derived from percussion, the cardio-hepatic angle far from being obliterated, is sharp and clean cut. We are here probably dealing with an effusion of considerable degree which has put the pericardial membrane on the stretch.

In concluding this short demonstration of heart types, I should like to dwell for a few moments on a subject which has been and still is discouraging to the clinician, namely congenital heart disease. Although the accurate diagnosis of the lesion which is present in the individual case is still subject to much uncertainty, the fluoroscope is able in certain lesions to offer valuable aid for its accomplishment. This is notably true of those cases in which the ductus arteriosus has retained its fetal condition of patency. In such cases the pulmonary artery is the recipient of blood from both the right ventricle and the aorta so that it becomes dilated and shows an exaggerated pulsation which occurs in no other condition with the exception possibly of the very rare aneurysm of the pulmonary artery.

Figure 5 illustrates such a case in which cyanosis and the other visible evidences which commonly characterize congenital heart disease, are absent. This patient has the usual auscultatory physical signs of patent ductus arteriosus, the diagnosis of which however is rendered more probable by finding a large pulsating pulmonary artery.

122 West 118th St.

LIFE INSURANCE AS AN AID TO LONGEVITY AND EUGENICS.

BY

J. M. FRENCH, M. D.,
Milford, Mass.

Life insurance promotes longevity. It is a fact that some wives are not willing that their husbands should insure their lives, because of a superstitious fear that it would hasten their death. But the truth is far otherwise; for there can be no question, not only that the great mass of the insured live longer than the greater mass of the uninsured, but that they also live longer than they would if they were not insured.

The mind has much to do with health and longevity. Especially is this true when one has passed middle life. At this period it is probable that more lives are shortened by worry than by either overwork or exposure. It is worry that fills our divorce courts, brings on nervous breakdowns, causes insanity, and ends ofttimes in suicide. Especially is it worry on account of pecuniary circumstances. Not to know where the money is coming from to pay next month's rent bill, and the fear that one's family will not be properly provided for when he is gone—these are the things that break down strong men, and make cowards of the bravest.

On the other hand, there is nothing like a reasonable certainty for the future to allay anxiety and lengthen life, both for the insured and his beneficiaries. A man who is young and well, feels that he can take care of himself and his family. But with age his earning powers will grow less, and with death they will stop entirely. The various forms of life insurance—such as whole life, endowment, and annuity—provide for all these contingencies, giving that which is most needed under the circumstances. The ordinary life policy makes sure of a provision for the dependent family; the annuity does the same thing in a way which is in many cases greatly to be preferred; while the endowment provides money for the use of the insured himself in his later years. If the man who carries insurance for his family, outlives his beneficiaries, there is sure to be some one who will give him the necessary care in his old age and infirmity, if only for the life insurance which he will leave behind him.

Some one has said, that fifty years ago, when a man found himself at the point of death, the first question which he asked himself was, "Is my soul saved?" While today, under similar circumstances, he asks himself instead, "Is my family provided for?" And if his mind is at rest on account of the consciousness that he is carrying a satisfactory life insurance policy, it may well turn the scale in a doubtful case, and bring him back to life and family again.

Beyond this, life insurance cultivates the habit of saving, of economy, of sobriety, of perseverence in well doing. It helps to make a man reliable, responsible, a good citizen. On his insurance policy he can borrow money in the time of need. It is a hostage given to fortune, an earnest that he is not a tramp, a drunkard, a criminal, or an outcast—nor is he likely to become one. It is a powerful influence in the direction of morality, prosperity, and good citizenship, and tends to conserve his health and lengthen his life.

Life insurance is a potent factor in the physical and mental improvement of the race. This is of even greater importance than the promotion of long life in the individual. It tends to make the next gen-

eration longer lived and more enduring than the present.

In order that the business of life insurance may be carried on successfully, it is necessary that those who are to be insured should present satisfactory evidence of a good family history, a good personal history, a sound physique, good habits of life, and a healthful occupation. The possession of these qualifications therefore results in an aristocracy of health. The life insurance companies are building a distinct line of cleavage, dividing the community into two classes, the one comprising those who have been accepted by a responsible insurance company as good physical risks, and the other those who have not been so accepted. Of course this latter class includes not only the rejected risks, but also the great mass who have never been subjected to these tests, and hence do not know whether or not they would be accepted. What this amounts to, is not so much that the community has been divided into two classes, as that out of the whole number there has been separated a class higher in its physical qualifications than the general average, which, while indeed it contains only a certain proportion of those who possess the higher qualifications; rigidly excludes all who fail to come up to the required standard.

Now it is one of the characteristics of all men who are worthy of the name, that they like to reach out for something a little higher than the general average, something so difficult of attainment that not every one can reach it, something so desirable that it will cause them to be looked up to, something to which every one cannot be admitted. It is in this way that is carried on the process of natural selection, which at its best results in the building up of the race. As the business of life insurance increases in volume and extent, more and more persons are sifted out and held up as models of physical excellence. The result is the formation of a voluntary aristocracy, based on good physical qualifications, in which the life insurance policy serves not only its primary purpose of a promise to pay cash, but acts also as a certificate of admission to the society of the high grades, and a diploma of merit wherever found.

In these days of much talk about eugenic marriages, there are few better and more practicable ways for a young woman to secure a husband who can meet the qualifications required for matrimony, than by looking up his record to see if his life is insured. This is of importance, first, as indicating whether or not he may be expected to possess sound health and have a good ancestry; and secondly, as showing whether he has already begun to make provision for a wife and family. It may be too radical to say that no man who cannot pass a life insurance examination ought to be allowed to marry; but I am inclined to think that the world would be the better off for the observance of that rule, at least in the large majority of cases. Along with this rule might well be given this other, that no man of marriageable age who can pass such an examination, and neglects to get insured, ought to be accepted by any young lady. Certainly he would not be considered as a desirable addition to the family by her parents.

Some years ago, I attended on the same day in the city of Boston, the meetings of the grand lodges of two of the great fraternal orders of Massachusetts. One of these was an insurance order, and required of its members a careful physical examina-

tion; the other was a moral reform society, and its qualifications were moral and social rather than physical. Each was a representative body, made up of delegates from the different sections of the order. Each included both sexes in its membership. The two met within a few blocks of each other. But the difference in the physical appearance of the members of the two bodies was so great as to make a lasting impression on my mind. A considerable proportion of the latter body were physically inferior, undersized, and defective. On the other hand, in the insurance order you were at once conscious that you were in the presence of a picked body of men and women. who were of good physique, and in every way superior to the general average. The line of cleavage was a life insurance examination.

Now the holding up of a higher standard than the general average must be of benefit in the physical world as really as it is in the moral and intellectual. Evident to all is the elevating influence of a school or college upon the intellectual standard of the town or city in which it is situated, as is also the moral benefit of a church or churches. The school and the church are the leaders in their respective spheres, and tend to elevate all who come within their influence.

In a similar way the business of life insurance, by its selection of a class of lives above the general average, and its rejection of those who fail to come up to its standard, renders the possession of good physical qualifications increasingly desirable, and causes them to be more and more sought after. It thus serves, not only directly to bring material comforts into the homes of its members and beneficiaries, but also acts indirectly but none the less powerfully as a factor in the building up of a better physical race.

The life insurance organizations of our day are taking advanced ground as public benefactors, by educating their policy holders and the general public in the essentials of public and private hygiene. Some of them are sending out at frequent intervals letters or circulars to their policy holders, explaining the precautions necessary for avoiding contagious and infectious diseases, giving directions for the management of those afflicted with such chronic diseases—whether curable or incurable—as tuberculosis, cancer, Bright's disease, and diabetes, and teaching the general rules of hygiene at the different periods of life and in the different occupations and conditions of life. Others are furnishing free medical examinations at frequent intervals, with a view to the early detection of the beginnings of degenerative disease. Some of the industrial companies furnish district nurses to give the necessary care to their policy holders in sickness; and some of the large orders and insurance companies support sanitariums for their tubercular members. The fact that these things are done, not out of pure philanthropy, but for good business and financial reasons, does not lessen, but rather increases the force of the argument, and helps to prove my claim, that the business of life insurance is an aid to long life, and the forerunner of a better race.

A point well to be remembered in the diagnosis of an indurated sore on the penis or within the urethra, when a denial of exposure is received with credence, is the question of malignancy. A small section should be excised for examination.—*Am. Jour. of Dermatology.*

ON THE ECONOMICS OF NEW MEDICAL TITLES.

BY

H. B. YOUNG, A. M., M. D.,

Burlington, Iowa.

From the recently reported discussion in the Ophthalmic Section of the A. M. A., at St. Paul, as well as the prospectus of the American College of Surgeons, we learn that there is a considerable sentiment in favor of something additional to the title of M. D., by which the public may be further assured of special qualifications on the part of the medical men professing them, and that incidentally, medical men may be stimulated to greater efficiency through the greater opportunities naturally to be expected from such distinction.

It should go without saying that a distinction without a difference would be worse than a mistake. It should also go without saying that unquestioned guaranties of authorization must accompany the use of the new titles, to secure the desired public recognition. With the public unconvinced the demand for them would also dwindle; because shorn of all verbiage they would primarily be sought as *prima facie* evidence of pre-eminent ability, in other words, a display to attract business.

And there's the rub,—the guaranty.

First we have to remember that the public is suspicious of anything that smacks of self-constituted authority; and then, that in a government constituted as this United States, any other form will be difficult of attainment. As citizens of a representative democracy we have some privileges not granted to our Anglo-Saxon brothers across the sea (even those across our northern border); but in the matter of civil titles the advantage is the other way. They are secure in that governmental sanction whose express disavowal by our forefathers was a fundamental note in the separation of the two peoples; so a possible challenge on consistency, should we copy them now, must also be borne in mind.

For the present there seems no alternative. The authorization must be more or less self-constituted, and everything depends upon the way in which that authority is set up.

It is perhaps easier to say what should not—than what should—be done. Manifestly there must be no "star chamber" work, no exemptions from the common tests, and no compromises. Otherwise we build upon a foundation of sand; and from such a foundation has arisen all our dissatisfaction with that multiscript, so multiscript that it is well-nigh nondescript, superstructure known as "medical legislation." In this particular instance it is hard to say which was the weaker feature, the exemption for those who could show five years of practice, or the compromise on diplomas from certain medical schools. The former would be, and eventually has been, self-eliminative; but the latter,—well, even with state examinations as a buttress, if three medical schools, having no other feeling of comity, can have the protection of the law, why not others *ad infinitum?* And, honestly, why not? One experience of this kind is enough.

If we are to make the new titles all that we would have them, we must, to use the vernacular, now show that "we have the goods." Nothing short of that will be effective. Assuming that "we have the goods," the problem resolves itself into a question of how to show it.

Supposing then that we make it known of all men that the new title will not be conferred until the candidate shows a record (his own work) of at least ten cataract extractions, ten laparotomies, or their equivalents in other capital operations; and that the regular possession of the title is certification of such experience. This would mean something definite. In a sense it would be "advertising." But the man, merchant, mechanic, or professional, who advertises honestly has nothing to fear from his competitors or the community at large; and the professional alone has so far been denied the use of this appeal for attention. Does he eschew altogether such aids to advancement? Let those answer who have not the secret of getting press notices gratis; or the other kind, under cover.

It's a delicate and ticklish business—this matter of improving on the old time title unless we are prepared to sacrifice that time honored (?) maxim: *"Doctors* should not advertise." If they are right, and their presentation of facts is startling, who contend that the world becomes more and more commercial every day; that there are really but two classes of people, employers and employees; and that their relations are increasingly cold-blooded, the profession might do worse than contemplate a rewriting of the code, to make it conform with modern business standards. For there are some who fear the eventual establishment of national insurance or state practice.

The medical man has not so far made use of "printer's ink" like other men, because he has felt that he is thus distinguished as the antithesis of the charlatan. But logical as this reason is, it is wanting in practical force. It presupposes a discrimination on the part of the public which is not justified by the facts. In this connection we think first of the public so tersely described by the late P. T. Barnum. There is however another public, one which expects to be informed through the common channels, has no gift of divination, and which might be depended upon to discriminate between honest advertising and the other kind, but falls into error because the other kind is all there is in evidence. As a matter of fact, this public, ever looking for the man who does things rather than the man who proposes to do, holds the medical profession, through its failure to show its hand fully, responsible for these errors.

This is not a plea for advertising with ulterior personal gains in view. Nor is it a fanciful picture of the results to follow a new departure. A definite proposition is before us, one not wholly altruistic; and it is for the majority, not the few, to decide upon it's acceptance or rejection, after the pros and cons have been fully set forth.

THE CARE OF SEMI-CHARITABLE MATERNITY CASES IN SMALL CITIES.

BY

ARCHIBALD L. McDONALD, A. B., M. D.,
Attending Physician Bethel (Crittenden) Home, Duluth, Minn.

Several recent articles, Williams, *Jour. A. M. A.*, 1-6-1912, Ziegler, ibid, 14-1913, Jacobi, ibid, 6-8-1912, indicate clearly that present methods of teaching practical obstetrics and of caring for pregnant women are quite inadequate. It is pointed out: first, that medical students are not given an opportunity to conduct or witness a sufficient number of confinements. Second,

that far too many women suffer needlessly from inefficient care during pregnancy, labor, or puerperium. Third, especially by Jacobi, that the babies are given little or no attention during the early months of life. It is stated that many families can not afford to pay the customary medical fees and as a result are cared for by midwives, and only the very difficult cases are brought to the clinics. It would seem obvious that the untrained midwife can not render adequate service to these cases. However, it is claimed that women of the same class who are cared for by physicians fare little better than do those attended by midwives. Several explanations may be offered for this assertion. It is probable that regular physicians are more likely to be called to the difficult cases, which the midwives are unable to handle, and in turn the physician is more apt to refer his complicated cases to a clinic where such statistics are gathered. Further, the physician is often sent for, only when labor is in progress, or in the face of an emergency, and has no opportunity to ward off or prepare for any of the more serious complications. In the homes where such labors occur it is well nigh impossible to conduct a clean normal confinement, much less an aseptic surgical delivery or after-care. Finally the fees which such people are willing or able to pay are entirely inadequate remuneration for the service rendered or the responsibility assumed. Most physicians have had at some time a fairly clear picture of what is ideal for obstetrical work, but the exigencies of general practice together with the above mentioned conditions force him to a much lower standard.

The conduct of labor is a procedure entitled to much more respect by both the profession and the laity than it at present receives. Upon its successful issue depend the lives of two individuals and the welfare of the family. Who can trace the results of the loss of a mother possibly through some avoidable complication of labor or her invalidism through some procedure for which the obstetrician is unprepared? True in the vast majority of cases it is a process without complications. But one must at least be assured of asepsis. In emergency the physician is called upon to take surgical risks involving two lives which no operator would consider justifiable as an elective procedure. We know as a matter of fact that aside from venereal infection, congenital defects, and pathological growths, gynecological diseases are largely the results of obstetrical complications. Further that many of these could have been avoided and the rest repaired at once under proper conditions at the time of delivery or within a few weeks.

The life of the child now receives more consideration than a few years ago so that a living fetus is rarely sacrificed as an elective procedure, nevertheless many babies are lost through injudicious operations often forced upon the physician by the surroundings.

Again many babies are lost during the early weeks or months of life through neglect or ignorance of proper methods of care. In studies of conservation of human life and health there is here presented a field for earnest consideration by physicians and philanthropists. Society cannot afford to lose a single mother of a family through death or invalidism nor should any effort be spared to secure so far as is possible a living healthy child.

The subject is being extensively considered at present and some practical means

must be secured to insure efficient care to a large number of pregnant women without actually pauperizing the individuals. It has been suggested that we should educate midwives who can care for normal cases under supervision for a moderate fee. It is claimed by some that the majority of such women would be more safely cared for than by the indifferent attention they receive from their poorly paid overworked and too often inefficiently equipped doctor, and that the difficult cases could be promptly referred to a special hospital. On the other hand, who can predict with reasonable surety that any woman will have no serious complication requiring prompt and skilled attention? Surely there is no more reason for trusting obstetrical work to non-medical midwives than there is for a similar arrangement in the care of light typhoid, pneumonia or appendicitis. I am convinced that we must provide a system which will guarantee (1) Skilled observation and instruction during pregnancy. (2) Arrangements to have the confinement conducted either in a special hospital or if in the home with preliminary plans to insure asepsis, skilled attendance, and ready accessibility to help in case of emergency. (3) A carefully conducted puerperium with repair of any lacerations and (4) Instruction as to the care of the baby and its observation for a period of months by doctor and special nurse. Such service is needed by the very poor as a charity and by the moderately poor who do not secure it at the present time under existing conditions. There must be a twofold campaign of education (1) of the physician as an obstetrician and pediatrist and (2) more important, of the public to a real appreciation of a properly conducted pregnancy, labor and puerperium.

In cities with good medical schools, much is being accomplished in this field, also many city and country hospitals give good care to such as are paupers and come into the hospitals.

However there are many who can and should pay a moderate fee and who need such care as much as do the very poor. This feature of the work should be carefully developed (1) to avoid imposition, (2) to render the work as nearly self-sustaining as possible and (3) most important, to see that the service reaches all who need it. Furthermore medical men and nurses must be adequately compensated and efficient conscientious attention secured.

The service is of a distinct value to the individual and society so one or the other should be expected to pay for it. I believe that every city of moderate size, 15,000 to 100,000, offers a field for a special obstetrical, pediatric and gynecological hospital with an outservice and visiting department for the care of such cases as we are considering. I should suggest the following general principals as a rough working basis of organization.

The institution should be adequately endowed to insure its permanence and independence. On the other hand a set of fees should be arranged for various types of the service which would render it self-supporting provided all patients paid on an adequate basis. The endowment fund should be drawn on to make up deficits and as a loan or gift fund for needy or poor applicants. This feature could best be handled by special social service workers independent of the medical staff.

The staff should be a permanent one consisting of (1) an obstetrician and gynecologist who is also director devoting his entire time and paid a salary in proportion

to the work done, (2) a visiting pediatrist who would conduct an outpatient department for mothers with young babies, (3) interns or outpatient assistants depending upon the volume of the work.

Arrangements might be made with younger physicians to work under direction of the institution and render such service as is required at moderate fee. (4) Besides institution nurses there should be a staff of visiting nurses and social service workers.

The institution should provide the following services:

I. (1) Obstetrical. A—Outpatient department for examination, instruction and classification of those who are to be confined in the institution. (2) Those who can safely be cared for in their homes with preparations by the visiting nurse. B—Maternity wards, lying-in rooms and operating rooms for the hospital cases. C—efficient outpatient assistants for the care of many in their homes.

II. Pediatric—outpatient for visiting nurse for the observation of babies and instruction of mothers.

III. Gynecological—for the care of diseases of women in the outpatient department or operating room and wards.

Any patient applying for care should first be examined by the physician who can give an outline of the required treatment whether in the hospital, home or dispensary and referred to the social service department where arrangements are made for fees, loan or free treatment as the individual case justifies. All cases would be handled by the medical staff on the same basis regardless of the financial arrangement.

There are few if any such institutions outside of the large medical centers. However I am convinced that there is a field for such a service in every city of the middle class. Further that it would establish itself in a short time as one of the greatest factors in solving the problems under consideration.

AN ENORMOUS EMPYEMA.

BY

D. H. GALLOWAY, M. D.,

Roswell, New Mexico.

One day a young man of twenty-two, walked into my office. He was able to say but one word at a time, without stopping to take breath. Even through his coat I could see that he was dreadfully misshapen. I asked him to remove his coat, and not to try to talk, he did so. Then I found the left side of his chest enormously distended with three large flat tumors on the surface, each one of them about six inches broad and 2 inches thick in the middle, resembling a large saucer turned upside down. I made a diagnosis of empyema. Advised him to go to the hospital at once, and in the morning I would resect a rib and remove the pus. He accepted without question, then I put him in my buggy, took him to the hospital. I told the sisters to prepare him for operation the next morning.

About eight o'clock that evening, I called at the hospital and the sister told me that my patient could not live until morning. I found him sitting up in bed gasping for breath, with lips blue, and I could scarcely find any pulse at the wrist. I introduced an aspirating needle through which the pus ran very freely for a few minutes. I then put on a pump to which was attached a graduated bottle. And in the next hour and a half, I pumped out one hundred and

eighty-eight fluid ounces of pus, so ill-smelling that the sister holding the kerosene lamp was obliged to put it down and leave the room. The young man sitting up in bed wanted to hold the lamp, but I allowed him to steady the needle instead, while I continued the pumping. The pus was still flowing freely but I stopped because I had never heard of this amount of pus being taken from the chest at one time, and I did not know what the consequence might be. The heart occupied about the position on the right side that it normally does on the left. With the removal of the pus, the heart showed no tendency to return to a normal position. The young man expressed himself as feeling better than he had for three months, immediately laid down, went to sleep and had a good night's rest.

On the second day following, with the assistance of Dr. Howard Crutcher, I resected a rib, turned him on his side and poured out pus until it filled to overflowing, a large surgical basin which held something more than a gallon. This made more than ten quarts of pus that had been removed. I introduced a small electric light into the cavity and could see a bunch, perhaps as big as a man's fist, at the apex of the pleural cavity, which represented the compressed lung, or what was left of it; this never expanded. The heart did not move from the place on the right side where it seemed thoroughly fixed.

An Estlander operation was discussed with the family and the patient, but was not accepted. The cavity became very much smaller by retraction of the chest wall. The tumors on the surface disappeared in two or three days, but the cavity continued to discharge pus, although in constantly diminishing quantities, until the patient's death, which occurred about nine months after.

I could not find any record of such an amount of pus being contained in the pleura, and withdrawn in so short a time.

OBSESSIVE DOUBTS.[1]

BY

WILHELM STEKEL, M. D.,

Vienna.

Translated, abridged, etc., by Samuel A. Tannenbaum, M. D., New York.

Doubt is a feeling of uncertainty. It is the expression of a conflict between two emotions for the control of the will. This conflict constitutes the distinction between doubt and skepticism. *Skepticism* is a matter of the intellect and presupposes a freedom from emotion. Nor is the doubter an "unbeliever." On the contrary; as long as one doubts one is still struggling with some belief. He is not a nihilist, a negationist, but a "positivist" in conflict with negatives. As Sollier has pointed out, *a conflict is the essential characteristic of the doubter.* The skeptic contends no longer; he is one who, usually for the sake of peace, has laid down his arms. But we are not now concerned with a discussion of the philosophic nature of doubt. We are interested in doubt only as a symptom of a neurosis, which Stekel considers essentially *a disturbance in the emotional sphere. Doubt is the characteristic symptom of the obsession neuroses.* In a rudimentary form it is not wanting in any neurosis. It may almost be regarded as the twin brother of apprehension.

[1] The following is almost wholly a more or less free translation of a paper ("Der Zweifel," in the *Zeitschrift für Psychotherapie u. medizinische Psychologie*, Vol. IV, 1912) by Wilhelm Stekel, M. D., one of the most successful and brilliant psychanalysts in the world.—T.

Doubt never occurs without an admixture of apprehension, nor apprehension without doubt. Possibly future investigation will prove doubt to be only a specialized form of apprehension.

Every apprehension affect—and Stekel differentiates *apprehension* from fear as being *an illogical reaction against the longing for death which results from the suppression of the sexual instinct*—is a compound effect consisting of several components. There is no case of apprehension which does not include these important questions: *shall I? can I? or may I?* These questions already manifest the doubt. The reply, the neurotic compromise, opposes the categorical "no" to these questions and constitutes the phobia: "you cannot;" "you must not," or "you shall not."

Only a very strong imperative, the strongest of all imperatives—*you must*—can overcome this apprehension. The imperative overcomes the fear of death. Subsequently we shall show that neurotic doubts, too, are ultimately terminated by an imperative which we call an obsessive idea or an obsessive act: you must. These imperatives, too, contain the life and death stipulation, usually in the following form: unless you do or do not do so and so, you (or someone else) will die. *The conquest of a doubt is always affected by an imperative.*

A phobia too is an imperative which puts an end to painful vacillation. Freud says: "Apprehension hysteria develops more and more into a phobia; ultimately the patient may become free of fear, but only at the cost of checks and restrictions to which he must subject himself. In every case of apprehension hysteria there is from the beginning a definite psychic task: to bind psychically the free-floating fear; but this cannot bring about the reconversion of the apprehension into libido, nor its reassociation with the complexes from which the libido emanated. Nothing remains but to evolve psychic defences—such as precautionary measures, restrictions, or prohibitions—and thus avoid every possible occasion favorable to the occurrence of apprehension, and it is these defensive measures that appear to us as phobias and that apparently constitute the essence of the disease." It may be added here that, in accordance with a suggestion made by Freud, by *apprehension hysteria* is meant *any psychic apprehension that is determined by unconscious ideas.* Apprehension hysteria, therefore, embraces all those conditions which were heretofore termed "phobias."

A *phobia* may therefore be defined as an *apprehension hysteria in which the doubt component is replaced by a negative imperative.* (The fear to go out alone—"thou shalt not go out alone!"—T.) The first effect of the prohibition, check or restriction, is to *deprive the apprehension of the doubting affects.* We shall rarely find a patient suffering from a bad case of apprehension hysteria who says to himself: "Perhaps I will be able to go out alone to-morrow." On the contrary! Such patients say: "I am quite sure that I won't be able to go out alone to-morrow."

In fact, when the doubt recurs, when the patient becomes conscious of the question whether the fear can ever be overcome, it is a sign of improvement. The treatment of a phobia consists in undermining the imperative and in restoring the doubt. (Curiously enough this comes about as a result of belief!) If the patients doubt the possibility of being restored to health, that too is a favorable sign. Bad cases know

no doubt. It is *the task of psychanalysis to cure the phobia by resolving the negative imperative "you cannot" into the doubt "perhaps you will be able to," and then to re-establish the belief in oneself by the disintegration of the doubt.*

For *every doubt is a doubt of oneself;* every belief a belief in oneself. Belief and doubt constitute an effective couple—just as love and hate, desire and disgust—manifesting themselves at times in a positive form (=libido) and at times in negative form (=disgust). This peculiarity is characteristic of the psychic life as a whole and was named "bipolarity" by Stekel, ("ambivalency" by Bleuler). The law of bipolarity applies to all psychic phenomena. There is no sadist who is not also a masochist, (no voyeur who is not an exhibitionist), etc. This law applies also to doubt, and we may say that *doubt is a negative belief.*

In apprehension hysteria, as in all the neuroses, the belief in oneself is lost or badly shaken. Inasmuch as most of *the symptoms of a neurosis are of a negatory character,* we shall find in every neurosis disgust, hatred, apprehension and doubt, as indications of a *neurotic defence.* It may be remarked here that the positive aspects of apprehension and doubt unite in the "belief in oneself," and that all the negatives, *disgust, hatred, apprehension and doubt, are only tranformations of psychosexual energies.*

Doubt too, like apprehension, is only repressed energy. In the case of apprehension we are dealing partly with the *transformation of libido* (="yearning," sensuous desire) *into organic and somatic symptoms;* in the case of *doubt, into mental symptoms.* The more highly cultured the individual the more pronounced will be the doubt component of the transformed energies. Uncultured persons present the simple forms of doubt: may I? can I? or shall I? In intellectual persons these questions are endlessly complicated, somewhat as follows: "shall I, if I can" or "can I, if I should not?" etc. Finally the doubt, in a sublimated form, becomes a source of pleasure in the shape of intellectual employment (philosophic doubt, impulse to investigate, etc.), i. e. the libido is manifested in a sublimated form, because in this form the forces of morality, shame, disgust, etc., no longer operate to disguise and repress it.

To illustrate what has preceded Stekel reports and analyzes the following case: Mr. F. St., a lawyer, single, suffering from a bad case of obsession neurosis; one evening he leaves his residence for a stroll. Before doing so he says to himself: "Be sure to turn off all the gas cocks carefully, that no misfortune may befall during your absence." He turns off all the gas cocks and goes out. Hardly has he reached the street when he is overcome with doubt: "Are you sure that you turned off all the gas cocks?" He becomes apprehensive lest he turned the cock to the left instead of to the right. "Nonsense," he says, "of course I shut off the gas properly; besides, Clara (the housekeeper) is at home and she will look after it when she goes to make my bed." With this thought his fear increases. "What if she should enter my room with a burning match. There would be an explosion, a fire would break out, and she would be burned. Then I would be responsible and I'd have a lawsuit on my hands. Bah! I turned the cock correctly, the light was extinguished, and the meter must have been shut off." In spite

of his vivid recollection the doubt will not leave him and a voice within him says: "You did not close the meter." Finally he hurries home, rushes breathlessly into his chamber to find that he had turned the gas off and that everything was in order.

What has happened in this case? How did this doubt originate? In the first place because of a confusion between seeming and being, between symbol and reality. To him the gas cock was a symbol for the housekeeper upon whom all his desires were directed. His wish was to close the "meter" (Viennese slang for "vagina") and to play the role of the "cock." The whole foolery about the cock was a symbolic playing with the cook. While walking along the street his hidden thoughts were: "You ought to go back home and make love to the cook," i. e. close her meter. "Why, you did so," says consciousness to his unconscious desire: "You did shut the meter." But the unconscious, hungering for realities, replies: "The cook is not indifferent to your attentions; she is in flames; she is burning: go home and attempt her conquest." We note that his wish that the cook should burn with love for him is converted into fear that she might be destroyed by an explosion. What, then, deters him from attempting the cook? The fear of consequences, such as infection, paternity, a lawsuit, quarrels with his parents, etc. All these apprehensive ideas become manifest in the conflict with his desires. "Shall I or shall I not commence with her?" He foresees the results of the explosion (=emission)—lawsuits, annoyances, etc.—and yet he rushes home.

This act of his is a compromise between two desires, between symbol and reality. (Consciousness interprets literally what is symbolic in the unconscious.—T.) Apparently he is hurrying home to put an end to his fear by shutting the gas (meter); but he is also going home because he is returning to the coveted housemaid (=meter) upon whom his unconscious love is directed.

We see, then, that his doubt is a vacillation between symbol and reality (the two meanings of "meter"), as well as a conflict between intellect, on the one hand, and his emotions and desires on the other; and desires, as we know, are the motive power behind the emotions. (Where there is no desire there is no passion; without desire there is no dreaming, no reveries, no poetry, no art, no religion—and no psychoneuroses.—T.)

In this case the doubt is, therefore, the result of a conflict between the intellect and the desires which resulted from a confusion between seeming and actuality, between symbol and fact—a conflict between the conscious defensive forces and the unconscious impelling forces. (An instance of regression from the sphere of action to the sphere of thought). But this by no means exhausts the analysis of this doubt. Before his marriage his father had had an unpleasant experience with a servant girl, as a result of which he had been blackmailed, and he often reminded his sons of this, so as to warn them against a similar fate. F's mother, the pillar of the family's morality, had for a decade striven—and not without success—to inculcate her moral principles in her sons. Our patient's conflict was thus determined: his father had had a love intrigue before his marriage; if he identifies himself with his father he should also have such a love affair; not every intrigue must end in blackmail and scandal. Another voice, representing his mother says: "You shall not

involve yourself in such a stupid affair; the results are paternity, infection, blackmail, etc." (The maternal imperative is necessarily differentiated from that of the father).

We may say, then, that his affects vacillated between his father and his mother—a state of affairs (the "father complex") that we shall find in every case of obsession neurosis. Such patients are always choosing between two objects. Freud emphasizes this when he reminds us of the well known question put to children: "Whom do you love more, your father or your mother?"

In our illustrative example the matter is complicated by the fact that the housekeeper is to a certain extent the mother's substitute. She had been installed in the household by the mother, had her figure, and assumed certain motherly rights. She thus became the object of the patient's unconscious incest thoughts (the Oedipus-complex), had a strong attraction for him and a stronger prohibition against herself. The question thus overdetermined now is: "May I yield to my morbid incest-phantasies?" Hatred and revengeful feelings toward the father drove him to this symbolic act. His father is replaced in these thoughts of vengeance by a bachelor brother who shares the apartment with him and whom he envies and hates for his sexual libertinism and because he had been the unconcealed favorite of their mother. His secret, and at times conscious, fears were that during one of his absences his brother might enter into an intrigue with Clara. (His mother had preferred his brother; Clara might do likewise). He had, therefore, a legitimate secret motive for hurrying home and convincing himself that his brother had not set his beloved on fire, that his rival had not "closed the meter." *He projected upon the cook his vacillation between two objects, for he attributes to her a vacillation between himself and his brother.* (He vacillates between Clara and his mother, etc.—T.)

Every neurotic avails himself of such "projections." He thinks everybody else vacillates doubtingly between two objects. This is one of the causes of *jealousy* which is not lacking in any case of obsessive doubts. Stekel defines jealousy as the projection upon the beloved of one's own tendency to inconstancy. (*Was am Grund der Seele ruht. Wien,* 1909, p. 150).

The doubt is a doubt of oneself. Only one who believes in himself believes in others; who doubts himself doubts the whole world. In the case of jealousy of a third person there enters, as Freud has taught us, a love for that person. We are jealous only of those whom we (consciously or unconsciously) love. Before we can be jealous of one we must find within ourselves that love for such a person is a matter of course. If the love for the third person (the rival) is greater than for the second (the beloved) there results the celebrated triangle in which the first person (i. e. the lover) is blind—blinded by his emotions. In our case F's brother had been the object of a long-standing homosexual love. We find here that component of doubts which Adler (*Der psychische Hermaphroditismus,* 1910) regards as sole cause of doubts, viz.: the vacillation between male and female, between homosexuality and heterosexuality. We may remind the reader here that according to Adler the neurotic is in doubt as to his sex: "Am I a male or a female?"

One other factor requires mention. The greatest trauma that F. St. suffered in his life was the love of a servant girl (named

Clara!) for him in his fifth year. It is to be noted that in this history we have two girls, both domestics and both named Clara. A similarity in the relationship between two persons (and in name, appearance, etc.—T.) plays an important role in the essentials of a love affair. The first Clara had for several years practiced fellatorism with him. When she was dismissed from the household he hated his parents most thoroughly. The tearful farewell of the girl was even more of a trauma than the fellatio had been. At that time his love wavered between his mother and the girl. This is one of the conflicts that plays a very important role in the psychic life of all neurotics. This maid had played the most important role in his childhood; he would not be a minute without his Clara. Suddenly his mother discovered that her son loved Clara. There was great excitement in the house when Clara was discharged. The little boy ran to his mother, begged and pleaded that the girl might be retained. But in vain! Clara departed cursing his parents, but before doing so she exacted from the boy an oath on the crucifix that he would never love another. Now we understand why our patient was in a panic of fright every time he administered an oath. He very soon broke his vow, for he began to transfer all his love upon his mother. But let us return for a moment to the leavetaking. The boy had then sought for means to retain his beloved Clara. All sorts of possible and impossible criminal ideas went through his little head. Among other plans he thought of poisoning the whole family with illuminating gas. He had heard his mother repeatedly warn the girl at night not to forget to turn off the gas, as otherwise the greatest misfortune might befall. His criminal ideas concerned themselves chiefly with gas and verdigris. (He also suffered from a verdigris phobia.)

For the better understanding of our case the following remarks are essential. *All persons suffering from obsession neuroses are out and out criminals.* This corresponds to their *"psychic infantilism."* Stekel deduces from his investigations that the child is "universally criminal," corresponding to an early stage in the evolution of the race. (The biogenetic law of Haeckel.) In the child there slumber all the criminal instincts of humanity. (It were perhaps more accurate to say that the child is so selfish, so egoistical, so wilful, and so bent on gratifying its desires, that it is capable of any asocial act.—T.) The so-called innocence and purity of children is only a figure of speech. The obsession neurosis results if these criminal instincts are especially developed and a defence is built up against them as a result of fear and doubt. *Obessive acts are protective measures against one's own ego,* against the evil in man; they serve as a defence against the criminal instincts, carry out the forbidden act in the shape of a neurotic compromise, repeat various traumatic scenes and, finally, even take the place of prayer.

All this is very easily demonstrable in our patient. He suffers from a very annoying obsessive idea, viz.: that the meshes of his clothing might become infected with some poison which he would spread broadcast. He knows that this idea is not at all logical and has no foundation in fact: (This critical attitude distinguishes this idea from an insane delusion) but he cannot get rid of the idea, or rather, he could not before he was cured by psychanalysis. The compulsive idea

was purely altruistic; his fear was only for others. And what was the reason for this idea? As a small child he wanted to poison the whole family with verdigris. His syphiliphobia had the same origin.

Syphilis and verdigris, as all poisons, were to him only symbols, symbols of the impure, the vulgar, and the forbidden. In his dreams his incestuous desires and his atheism are represented by syphilis. In his heart of hearts he was a pious man, and his resistance to women, his fear of prostitutes and servant girls was referable to religious motives. Every extramarital coitus was a wicked sin that might jeopardize his immortal soul. And his belief was to him a light that illuminated the dark recesses in his soul and guided him safely through the dangers of this world. He dreamt once that he was carrying a light in his hand and a menacing lion ran away at the sight of it. The analysis showed that the light symbolized his belief and the menacing lion sin. His belief banishes sin. His fear that he had left the gas open goes back to a religious motive, the fear of God's vengeance. He had killed the light (=belief) within him. He is now apparently a confirmed atheist. He has a right to doubt this. In his inmost heart he knows that his belief is not dead—he had quelled it only in the intellect. The light was not extinguished; he is still a believer. He still occasionally goes to church—but only because it is so peaceful and restful there. So he "rationalizes" his prayers, which he anxiously conceals from himself. His doubt is a religious doubt. He doubts his unbelief. This is a form of doubt which we find in almost all obsession neurotics. They are all superstitious. *Superstition* is an obsession neurosis of the intellect which binds every doubt and distinctly reveals the element of fear (the death threat!). The wages of unbelief is misfortune or death.

But with all that his fears were only apparently for others. His boundless *envy* filled him with evil thoughts toward all men who had more than he or had accomplished more than he. To all appearances he was a very kindly and friendly individual, though in his heart he cherished all sorts of villainous fantasies of poisoning and murder. For all he cared the whole world might go to pieces, provided he remained alive.

After this somewhat long but necessary digression let us go back to the analysis of our patient's doubt. Why does he doubt whether he turned off the gas? We note here, in the shape of a doubt, the recurrence of an old self-reproach for his criminal ideas. The neurotic doubts himself, his goodness, his honesty and his purity. Our patient had really been a criminal without the courage to carry out his evil purposes. The doubt was the vestige of an old infantile doubt which repeated the pathogenic situation in his childhood: "Shall I turn on the gas and poison the whole household?" At that time, fortunately, he could not come to a determination. Every apprehension attack, says Stekel, repeats the whole apprehension history of the individual. This is also true of doubts. *The doubt has an immediate cause and is augmented by attracting to itself the repressed infantile emotions.*

We conclude then that this doubt was of a complex nature, being composed of the following factors: (1) vacillation between symbol and reality; (2) vacillation between his father and his mother; (3) vacillation between the maid and his

brother; (4) vacillation between the maid and his mother. Furthermore, doubts of the maid, of his father, of his mother, and of his paternity ("the family romance of the neurotic"). Obviously there were also doubts concerning his potency and ability to love, as well as doubts as to his rectitude. His doubt also betrayed his deeply religious nature. Besides this we find a serious element of apprehension in the form of a fear of infection, a fear of lawsuits, a fear of progeny, and the fear of a scandal.

This example enables us to formulate very simply *the relationship between apprehension and doubt.* In apprehension hysteria the apprehension is the more powerful force, and the weaker component (i. e. the doubting "shall I?" "can I?" etc.) is replaced by an imperative which constitutes a phobia. In obsession neurosis, on the contrary, the doubt is the stronger force, and the accompanying fear is replaced by an imperative which constitutes an obsessive act. The handwashing obsession represses the fear of contamination. The attempt to get rid of it liberates the apprehension. In obsession neurosis, in which doubt is the preponderating element, we shall never fail to discover a strongly pronounced tendency to bipolarity in the symptoms. Freud has very justly emphasized the vacillation between love and hate. In F. St. this vacillation appertained not only to the object of his love, but also to his mother, his brother, etc. In fact the hate was not at all manifest; and yet his murderous fantasies were easily demonstrable. This bipolarity is renewed in the vacillation between masochism and sadism, which is only a variation of love and hate, a vacillation between female and male. In addition to these he presented a series of symptoms referable to vacillation between right and left, above and below, before and behind, heaven or hell, etc. Another case analyzed by Stekel showed this bipolarity with reference to dry and wet.

This bipolarity in the symptomatology is a product of the obsession neurosis, can be demonstrated (in the form of a compromise) in all the obsessive acts, and is one of the transformations of the doubt. It is best shown in the case of a religious doubter, whose atheistic and blasphemous periods alternate with fits of piety. Blasphemy, like superstition, is only one of the forms of a strong belief. All persons suffering from an obsession neurosis, and perhaps *all neurotics, are really religious.* They have overcome their belief only in the intellect, whereas belief is rooted in the emotions. Baer very aptly said: "There are among them Jesuits who do not believe in the Son of God." In the atheism and skepticism of obsession neurotics there is a goodly portion of intellectual Jesuitism. Doubters who have ceased to doubt show in their profound consciousness of guilt that they are really religious. Their belief finds a way out of the bounds of the intellect in certain transformations, most commonly in the form of superstition—which is only a well masked belief—spiritualism or mysticism. A particular form of religious belief is the expectation of the miraculous, the hope for the great miracle. The *refuge in religion* which is so frequently met with in neurotics is a return to religion, i. e. the surrender of a conflict which had known no lull. (A coalescence of the father complex with the God complex).

One of the roots of doubts is the wavering between belief and unbelief. The belief in God fuses with the belief in the

highest authorities: father, king, the state, custom, morals, etc., all of which are involved in the vacillation. Essentially it is a conflict between intellect and emotion, between the conscious and the unconscious. In another sense it may be said that the doubter suffers from the dominance of "authorities;" the doubt is the unsuccessful attempt to free oneself from the yoke of these authorities (father, teacher, God, etc.)

Before proceeding with the further analysis of doubts Stekel cites the following case. Mr. Y. had lost his mother in early youth, and thereafter he and his older brother became the idols of a doting father. At the age of eight this doubt took possession of him: "If a robber entered the house or some other misfortune threatened, whom would I save first—myself or my father?" He concluded that he would have to save himself first, for if he died his father would not survive the loss. After this he was dominated by ideas of self-sacrifice; he would sacrifice himself for his father. In this case the doubt was thus determined: 1. Whom do I love more, myself or my father? "Myself," was the prompt reply. 2. Whom does father love more, himself or me? "Me," was the reply. 3. His brother did not figure in these fantasies because, being his rival, he was sacrificed for his father. 4. Hatred for his father was manifest in the robber fantasy; love for him in the idea of self-sacrifice. 5. His religious complex showed itself in the feeling that he loved his father more than "God." In the first fantasy his religion was sacrificed with his father; in the second fantasy, that of self-sacrifice, there was the joy of doing something that would please God. After the death of his father the neurosis manifested itself as a wavering between heaven and hell. Consciously a confirmed free-thinker, his unconscious mind occupied itself with the questions: "Is my father in heaven or in hell? Shall I live a holy life (i. e. sexually abstinent) and join my father after death or shall I live a gay life and go to hell for it?" Finally there were developed the following imperatives: "Do not go to women! Do not go into the street! Do not drink!" etc. With the aid of these imperatives he attained his great ambition: to live a holy life and thus ultimately to triumph over his father and brother, both of whom had been typical Don Juans. These imperatives ended his vacillation.

Of particular interest are those cases of obsessive doubts in which the doubt is apparently wholly repressed and never manifested. Only the powerful obsessive impulses, imperative acts from which the victim cannot refrain, betray the subterranean workings of the repressed doubt. Stekel illustrates this in the following case:

Mr. Z., suffering from bad convulsive attacks resembling epilepsy and terminating in a so-called "twilight state." In addition to this he is afflicted with a grave perversion—urolagnia, which manifests itself from time to time as an irresistibly imperative craving. When the impulse comes upon him he lurks about public urinals until some woman comes along to micturate; then he possesses himself of her urine and drains it to the dregs with the greatest pleasure. Up to his fourteenth year this individual had been very religious. One day, after reading an essay on Darwinism, he became a fanatic atheist; his conversion seemed to him very sudden but not unintelligible. As a matter of fact his apparent atheism had been

prepared for by years of unconscious doubts. Even as regards his perverse acts he had no conscious conflict. An internal restlessness, very similar to the "feeling of uncertainty" which Freud described as a prodrome of doubt, is the only conscious manifestation of the act. The conflicts work themselves out in the unconscious. This extreme splitting of the personality is to a certain extent the prerequisite for the convulsive attacks and the twilight state. The convulsion is the overwhelming of consciousness by his criminal complexes or some foreconscious factor; the twilight state is the transition from the unconscious through the foreconscious to consciousness. The urolagnia proved to be a derivative of a painful criminal impulse—bloodthirstiness—and a parental imperative. In his childhood his parents had forced him to eat even such articles of diet as disgusted him; he had to overcome his aversions. And now, too, he conquers his disgust by an exaggerated obedience (which is very frequently only a form of spitefulness). In this case apprehensiveness and doubt are manifested only with reference to normal coition, as to which he asks himself: will I be able to do it? shall I enjoy it? etc. But inasmuch as his libido was anchored in a perversion he did not develop sufficient libido to overcome his fear and doubt; he was simply impotent. But even as to that his fear and doubt did not become conscious, for he kept away from women.

Doubt is very intimately related to dizziness (confusion). Many doubters have the feeling that they are wrongdoers and have a certain tendency to wrongdoing (confusing others). Here opens up a new vista of those repressed criminal instincts which are found so frequently in all doubters. It is a remarkable fact that most victims of obsession neurosis are lawyers or philosophers. They are all actuated by the question, "which is the right way?" The lawyer seeks to find the right way by his study of law and equity. He wants to guard himself against the law; in reality he wants to be the defender of his criminal ego. In his day-dreams and nocturnal dreams such a one often sees himself as a defendant before a jury and pleading for himself.

The mechanism of doubts can be best studied in those cases that develop late in life. Usually these patients show distinct symptoms of doubt dating back to early childhood; but the outbreak of grave doubting states which unfit them for life can generally be referred to a definite recent experience.

A woman aged 34 years had for 6 years been suffering from a distressing doubting neurosis. She could not determine whether she had settled her accounts or not. She always had the feeling that her bills were still unpaid. Another one of her doubts was whether the gifts (e. g., a vase) she gave her friends were whole. One of her characteristic obsessive acts was the following: when mailing a letter the idea would occur to her that she had not put the right letter into the envelope, and she would find no relief until she opened the envelope and assured herself that all was right. The analysis in this case showed that up to the age of 28 the girl had been perfectly healthy and had no manifestations of "nervousness." In that year she one day found herself alone with her music teacher; he commenced kissing her very passionately and then bore her from the piano and laid her on the sofa. Then she lost consciousness, she says; i. e. she wholly re-

pressed the occurrence because she did not want to know it. The painful experience should be forgotten; her pride rebelled against the recollection of the erotic scene and, of course, memory yielded. The resurrection of this incident proves that her doubts and questions were fully justified. In the presence of her parents she felt a deep consciousness of guilt. This manifested itself in the idea that she had an account to settle, namely, with God and with her unconscionable seducer. She was in doubt as to her virginity. Hence her doubt whether the envelope (=vagina) was whole, whether the vase was cracked, etc. She was awaiting a letter from her seducer informing her that he had divorced his wife that he might marry her. All other letters were not the right letter. The whole scene was enacted in the tearing of the envelope. Then she substituted a new envelope for the torn one. (Symbolic regeneration.) The obsessive act replaced the parental injunction: "Consider well what you are doing!" It also embodies a death clause, for she had for weeks awaited news of the death of the pianist's wife. Her feeling of guiltiness was intensified by all sorts of criminal ideas of which her rival was the object and these gave rise to suicidal fantasies.

The origin of her doubts was quite clear. She doubted herself because she kept the recollection of important experiences out of her consciousness though unconsciously she remembered them very well. She doubted herself, her chastity, her physical intactness. She really did not know whether she had lost her maidenhood or not. Consciousness said, "No, nothing happened"; whereas the unconscious said, "Yes, you were violated." Her doubt is the conflict between these two important psychic factors.

This form of doubt is not at all uncommon. Whenever a definite experience is wholly repressed and excluded from consciousness the emotionally colored memory (the ever recurring regrets) biding in the unconscious keeps on prodding the apparently slumbering conscience and the doubt must find some symbolic expression in consciousness which reveals the truth even while it conceals it. In the case cited above it was a doubt about the settlement of an account. The ceremonial with the envelope was the symbolic representation of the rape, but with a favorable outcome; she replaced the torn envelope with a whole one. She also expected her betrayer to make amends. An old imperative of her father said: "One may make a mistake, but one must make amends."

The obsessive act is a substitute for, or equivalent of, an imperative. This imperative is the source of the unconscious inhibitions and of the commands at the service of the foreconscious. The imperative is always *the echo of an infantile imperative.* One may almost say: neurotics make their infantile imperatives their quest. The doubt arises as soon as the patient is called upon to act independently. He then finds that he cannot do so. He can solve the question, "which is the right way?" only by way of a compromise between the two foreconscious factors. To all appearances the imperative determines an action, but this act is in reality the manifestation of an inhibition.

An obsession neurosis is an *imperative of remorse.* The doubt represents the child's questions: may I? shall I? can I? And the reply is the obsessive act or

thought. The doubt is always, therefore, a doubt of oneself. The neurotic's doubts of himself are always just. He is not what he seems; he hates intensely while, to all appearances, he loves. He is rent with conflicting emotions. He is a criminal who seeks to compensate for his criminality by a moral supersensitiveness. That he harbors unconscious criminal desires alongside of his conscious morality shatters his self-confidence, makes him a humbug and hypocrite in his own eyes, and justifies his doubts of himself. Doubting himself he cannot have confidence in others. The belief in another has its roots in the belief in oneself. *Apprehension and doubt serve to save the individual from his criminal impulses* and are therefore entitled to a share in the construction of his neurotic symptoms. The doubt is bound by the obsession, as we shall show from some of the symptoms of our patient, Mr. F. St.:

He is invited to attend a ball; for a week he has been troubled with various apprehensive ideas, such as: will I deport myself properly? will I dance properly? etc. And this notwithstanding that for several weeks he had taken lessons in dancing for fear that he had forgotten to dance correctly. How will his new shoes fit? If only he did not have to participate in the opening dance when the eyes of all are directed at the dancing couples! He is afraid that he might fall with his partner and pictures to himself the ensuing commotion. Or he might collide with some strange couple and so get into an unpleasant altercation, etc. Finally the critical day is at hand; he is all excitement. He does not want to get to the ball too early; so he finds all sorts of things to do until he is suddenly seized with the fear that he may be late. He enters the ballroom with the certainty that he is late. To his surprise and inward annoyance he notes that the dance has not begun. Fortune favors him. It turns out that he does not have to join in the opening dance because he is not a member of the arrangement committee. Then he dances with his acquaintances and is conscious only of a slight fear lest he betray something in his conversation. He converses therefore only about the most commonplace trivialities. While dancing he thinks he feels that his shoe pinches; he also notices a slight discomfort when shifting the weight of his body from the right to the left foot. On the way home he is possessed by an idea that he had done himself some bodily injury by dancing in a tight shoe and a fear that he had divulged something in his conversation because of the physiological disturbance. (He meant "mental disturbance.") This obsessive idea was followed by reproaches for having injured himself and others by wearing tight shoes and for having divulged something. Then there followed a fear of tight shoes. It should be mentioned here that he had absolutely no reason for his fears, that his shoes were an excellent fit and that he knew of nothing that he had to conceal.

Freud has taught us that these obsessive ideas have a hidden meaning; that there is nothing meaningless when once we have learned to understand the language of the unconscious, not even in the delirium of the insane or in the dreams of normal human beings.

In this case what is the hidden meaning? what the secret thoughts that were so objectionable to consciousness that they had to be repressed? A knowledge of this patient's symbolisms furnishes a significant answer to these questions? In dreams

dancing very frequently signifies coitus. We all know that dancing is an exquisite sensual pleasure; it permits certain intimacies and contacts which are otherwise condemned; it frequently generates libido; (and is frequently followed by an emission. —T.) If we bear in mind that F. St. was relatively impotent we understand his fear that he may have forgotten how to dance; also the fear that he would come too late —the great sorrow in his life. As a result of his psychic backwardness he is always "too late." (Slang, he is "dead slow."—T.) He was even born too late, not being the first child of his parents. But he also fears "coming" too early—a reference to his ejaculatio precox. But this fear also relates to another matter: he had been introduced to certain matters too early. In his fifth year Clara had introduced him to fellatorism, had attempted coitus with him and permitted him to witness various acts between herself and her lovers. All this was followed by a profound feeling of guiltiness. The girl had strictly enjoined him to maintain secrecy as to what he knew, and this gave rise to his fear of self-betrayal and of divulging something. His fears were therefore justified. His mother had always enjoined him to tell the truth and assured him that God sees and knows all and punishes liars by hellish tortures.

Freud has very truly shown us that *"obsessive ideas are representations of acts."* Before we analyze St.'s obsessive ideas in the light of this formula let us point out that from our studies of dreams, folklore and fairy tales, we know that the unconscious employs the foot as a symbol for the phallus and the shoe for the vagina. (In American slang "his foot slipped" = "the penis penetrated the vagina accidentally." —T.) Putting the foot into the shoe means, therefore, coitus. An obsessive idea, we said, results from a confounding of symbol with reality. St.'s obsessive idea meant he had performed a coitus; the vagina (shoe) was too tight; (he feared the opening dance;) he had infected (injured) himself; (while doing military duty he had infected his foot through wearing a tight shoe and he feared sepsis;) he had contracted syphilis which would affect his brain ("physiological injury!"); he had contracted a gonorrhea which the stains on his clothing would betray to his mother and the servants (the fear of betrayal!); he would infect all those who would come in contact with him.

Indeed, his constant hypochondriacal fear was a fear of syphilis and of toxemias (sepsis=bloodpoisoning). His parents had systematically instilled this fear in him; they even refused to walk through the street in which the hospital for contagious diseases was located. Whenever his brother, who was a physician, came from the hospital he would wash himself repeatedly and even put on fresh clothes. His parents never ceased to talk of his cousin (who had a gonorrhea) and his uncle (who had syphilis). One of the greatest traumas he had ever suffered was the overhearing of a conversation between his mother and his aunt, when he was six years old, concerning the terrible results of sexual irregularities. His conscience troubled him because of his affair with Clara, and he thought he had good reason to consider himself sick. This was the reason for his fear of coming too early. He reproached himself for having ruined his health by beginning with women too soon. Of course, as happens in dreams too, the idea was overdetermined, i. e. was capable

of an additional interpretation. As happens in dreams and in hysterical symptoms, turning some of the sentences (or symptoms) around will give us an additional meaning. If we do this with his obsessive ideas we get the following: "I did myself a great injury when I made use of a vagina which was too large for my small penis; since then there is a disturbance in the physiologic functions of my body (i. e. I suffer from a nervous disease). I should have told my mother all about it at the time (to divulge!)." We note that this obsessive idea embodies profound penitence and justifies our terming an obsession neurosis "the imperative of repentance." It certainly applies to St., who harmed himself by what he did and deceived his parents by keeping silent about it.

We come now to another cause of his obsessive ideas. They all contain, in a disguised form, *a parental imperative*. He had repeatedly heard his mother say: "Don't enter into relations with women like your silly cousin and uncle did. Marriage is quite a different matter; but illicit relations injury body and soul. Don't be a pig like your uncle!" Nor did she omit to point out that boys who begin such things too early soon exhaust their vital powers. Another important cause for his obsessive ideas is *the death threat*, the fear of dying (syphilis, masturbation, blood-poisoning) or of causing another's death. His fear of injuring others has its deepest root in this, as well as in his infantile fantasies of vengeance. He was so jealous and envious of his older brother that he thought of poisoning him. And now we discover that he had also harbored very vivid incest-fantasies (Oedipus complex) which were (largely) an overcompensation for the hatred of his mother for having discharged Clara. His hatred is concealed behind an exaggerated love. His fear of coming late was also due to the fact that he was born too late to be his mother's suitor; and he envies his older brother for being the first-born.

In his childhood he had violated two of his mother's commands: to tell all and to remain chaste. He tries to make up for it now, and strives with all his might to be chaste and, as his fear of betrayal shows, to tell everything.

One other symptom deserves mention. We may recollect that he experienced some difficulty in shifting his body weight from the right to the left foot. In dreams and in psychoneurotic symptoms the right means the straight and narrow path, the correct way, the road to heaven; the left the wrong way, the way to hell, to sin, to incest, to homosexuality. Formerly he had also had a fear when he left his house that he had not taken enough money with him. The day before he had read in a comic paper that a dancer and danseuse had in a spirit of deviltry driven their automobile into a hotel. Such frolics, thought he, require much money. He visited the hotel that night as if for the purpose of picking up a sweetheart; every girl he saw was a possibility, every dance a sexual act, every unconscious fantasy a reality for consciousness. He had sinned so much that night that his remorse justified his compulsive reproaches and apprehensions.

This case shows us quite clearly that an obsessive idea represents a doubt and serves to bind it. Our patient's questions are at an end. The obsessive idea treats the fantasy as if it were a reality; it behaves as if he had actually entered upon a dangerous course, and responds with all the affects of repentance. It is as if the

voices of the unconscious would warn him of the dangers of the sexual. Through the years he hears the voice of his parents with undiminished intensity: "You may not, you shall not, you cannot; you will make yourself sick and die."

The doubt is a vain attempt to overcome these imperatives. The patient has the right to doubt but lacks the courage and the energy to believe otherwise. His doubts and his fears serve to guard him from the dangers of life and express the nullification or depreciation of the ego. The doubter is a person who has not attained his individuality; he is still in his childhood and shows the typical reaction of a child. *The doubt is one of the manifestations of his "psychic infantilism."*

A more classical case of doubts than the following one will rarely be met with: Mr. L. is thinking of leaving Vienna to continue his studies in Leipzig. One morning he determines to go to the university for his certificate when he notices that he lost his portrait and identification card. At once the thought occurs to him that a stranger might find them and put them to ill use; he might commit a larceny, a murder, a burglary, or what not, and leave the identification card behind him and it would be believed that he (L.) did it. He might find it very difficult to prove an alibi and he would be in a very serious predicament. He gets his certificate without any difficulty and rushes home. Feverishly he hunts for the card in his closets, books, clothes, etc., but all in vain. That night he is so excited that he cannot fall asleep. His head is so confused, such wild and whirling thoughts course through his brain that he fears he will become insane. Insanity would be a blessed relief in his present condition! While half asleep the following thought obsesses him: "I cannot get out of this. If I could only put an end to it!" He then falls into a deep sleep and wakes late in the forenoon with a heavy head. He then visits a female acquaintance with whom he had been a few days before. She knows nothing of his identification card. He gives her 10 crowns ($2.00) and asks her also to go to Leipzig. As he is going out she tells him: "If I make my 'Doctor of Chemistry' I shall also go to Leipzig." At once the thought occurs to him: "Ah! she has my identification card after all." He then visits another female acquaintance, vainly questions her about his card, takes her to a hotel and suddenly discovers that he is—impotent.

The following day he tells his mother, with a great deal of emotion, what had transpired, not even concealing from her the fear that the card might be in the possession of a prostitute or a pimp. At his mother's suggestion he reports the matter to the police and to the bureau for lost and found articles. Again without results. The following day he goes to the university to report the matter and is astounded when the clerk informs him that he (L.) had delivered the identification card to him upon receipt of his transference certificate. And, sure enough, there it was and there was his portrait. Very much astonished and not a little relieved he departs. He had hardly gone a short distance when his doubt returns. After all he had not examined the identification card carefully and perhaps the clerk erred. He becomes very uneasy and resolves to go back and make sure. What excuse can he offer for wanting to see his identification card again? He returns to the university and tells the clerk that he thinks he left a 10 crown bill in his card. Very much

surprised the clerk hands him his identification card, he convinces himself that it is his portrait and leaves the premises satisfied. After a little while, however, the doubt recurs, and then it dawns on him that his doubt is a pathologic one which facts will not overcome.

We know by this time that the doubt is always justified. There is no meaningless doubt—in fact, no meaningless psychic phenomenon. There is no psychic phenomenon that an intimate knowledge of unconscious ideation and symbolism will not show to be full of meaning. Mr. L.'s doubt must have some reference to his identification card (="Legitimation," in German). His doubt originated from many sources and was displaced on to the legitimation. A doubt may relate to something past, present, or future. "Was it thus or thus?" is a form of doubt referring to the past. "Do I dream or am I awake." is a doubt referring to the present. And "Shall I stay here or go to Leipzig?" or "What shall I do?" is a doubt referring to the future.

In Mr. L.'s case the doubt consists of all three forms, the historic, the present and the future. That referring to the past is easily explained and refers to the so-called *"family romance"* of neurotics who, as we know, imagine themselves the children of noble parents, changelings, and what not. Mr. L. at times permits himself to doubt whether his father is really his father, whether he is entitled to the name he bears. Under his portrait there ought to be the name of a noble family. We see now that his doubt is not meaningless. He doubts whether he is an L.,—a doubt which cannot be dissipated by merely looking at his portrait. His doubt cannot be solved. The question, "Am I my father's legitimate child, or was this father only foisted upon me?" transfers itself upon the symbol of the "legitimation" (identification card). This doubt too is a confounding of symbol with fact. His doubt concerns events of the remote past. The present question, "Am I or am I not an L.?" is only the sequel to his doubt concerning his mother's honor and his descent.

But he also has a doubt referring to the future. He had resolved to go to Leipzig and had made all the necessary preparations for his trip. He is bound to carry out his purpose but he would like to find an excuse for a change of plan. It was for this purpose that he lost his identification card, for he felt himself bound to stay in Vienna to prevent any misuse of his name. In truth, he takes his departure from his dear mother very hard. He had repeatedly asked her to accompany him. His departure from the university symbolizes his departure from his "alma mater." Equally hard is it for him to leave the two female acquaintances above referred to, between whom and his mother-complex there are remarkable associations. "I cannot leave Vienna," is his secret thought. Suddenly the city seems more wonderful than ever before. Shall he give up all his comforts and conveniences and take up his abode among strangers! But he knows that he must do so; he must sometime take the first step to independence and leave his family. Magic ties draw him back to infancy. He must tear himself forcibly from his psychic infantilism.

Before he fell asleep he was troubled with the thought: "If I could only get out of this, put an end to it!" Grave unconscious complexes threaten to break into consciousness and this, as we now know,

always fills the neurotic with dread of insanity. (It is as though the patient were saying to himself: "I can't be sane if I harbor such terrible thoughts and such wicked desires."—T.) All his doubts are referred to his loss of his legitimation (identity—identification card). He is in despair because a stranger may find his identification card; in other words, because a stranger will replace him in his home and he has lost his home and his mother. He is leaving his parental home, perhaps forever. He would like to transport to Leipzig all that Vienna has for him: his mother, his brother, his "lady friends," etc. And so he doubts whether he will be able to get along without these cherished objects in his new home. He is losing his "legitimate" friends.

His most important doubt, however, emanates from another source and refers to the present time. He doubts himself; he bears within himself wild untrammelled desires which, though unknown to him, a successful psychanalysis brought to the surface of consciousness. The stranger who, he fears, will avail himself of his identification card is himself; the stranger is the criminal ego within him. He is afraid he may lose himself; he may lose control over his immoral or, more correctly, amoral ego and bring shame upon his parents; he may disgrace the name of L. His doubt, then, is present and, in a certain sense, well founded. A man who has begun to fear himself has ceased to be a man of action. Every doubter is a Hamlet, who because of endless doubts and reflections (a "craven scruple of thinking too precisely on the event. A thought which, quartered, hath but one part wisdom and ever three parts coward") has lost the power of action. So in this case we see united into one symptomatic act the doubt as to his origin, the doubt as to the correctness of his plans, and the doubt as to himself—a symptom which began not as a doubt but as a mere forgetting and ended as an outright doubting neurosis.

A careful consideration of the case as a whole shows another determinant for his doubt. Stekel claims to have discovered in all neurotics a fantasy which he calls *"the great historic mission."* Mr. L. shows this fantasy in a very pronounced form with reference to religion. He cherishes a scheme to found a new religion, to reform the old ones, to write a book to re-establish the Christ—to be the new Christ. He made the first step towards the accomplishment of this purpose by taking up the study of theology. His talents were to be devoted to this great task. But here too he has his doubts, he doubts whether he is the one chosen of God for this work. He is awaiting a miracle that will mark him as God's deputy, that will "identify" him as the Saviour. But he feels himself stained with sin. As a child he still had the belief in himself and felt himself destined for greatness. And now he lost his "legitimation." The 10 crowns he gave the young woman symbolize his guilt (the Ten Commandments!). He is a sinner, he is lost. He will bury the old Adam (the stranger) within him and begin a new life.

In what has preceded we have shown many different kinds of doubt and, we think, we succeeded in showing many factors common to them all. Summarizing our results we may say:

Doubt is the expression of a splitting of the individual psyche. (Dual Personality). In every doubter there occur emotionally charged complexes which exercise a sort

of minor reign over the individual, so that alongside of the individual will one or more minor wills exercise their authority. Every doubt shows a tendency to eliminate (bind) itself through some obsessive act. This obsessive act embodies a death threat and obeys an authoritative infantile imperative. A doubt is never monosymptomatic; only apparently does it involve a single act (or habit); in reality it controls the entire psychic life. The doubter doubts everything. The greater the intensity of the repression the more strongly does the intellectual person doubt. Whereas the normal human being obeys the poles of the law of bipolarity in alternation, so that he loves or hates in turn, the doubter lacks this monopolar attitude, for he loves and hates at the same time. He fears and desires a certain occurrence simultaneously. We thus reduce our conclusions to this formula: *Doubt is the endopsychic perception of one's bipolarity.*

THE ANNOTATOR.

Arsenobenzol in the Local Treatment of Chancre and Other Lesions.—Melun, of Bucharest, as long ago as 1911 used "606" locally, not only for syphilitic lesions, but also for simple chancroid. Achard, Flandin, Sourdel, J. Roger and Bodin have had speedy cures from the powdered salvarsan used locally in Vincent's angina and ulceromembranous stomatitis. Netter cured 75% of his cases of noma in the same way. Phagedenic and sluggish varicose ulcers are also said to yield quickly to the powdered drug. According to the *Journal des Practiciens* for June 14, 1913, however, the powder is liable to cause deep adhesions in a wound and so delay union. The use of ointments is therefore advised and a typical formula embodies one gramme of salvarsan and five grammes each of petrolatum and wool fat; neosalvarsan may replace the older preparation. The surface to be treated should be washed first in boiled water. The application of such an ointment is painless and there are neither local nor constitutional phenomena to be feared. It is to be noted that the intravenous use of salvarsan in the hands of Lévy-Bing and Morin had no effect whatever on soft chancre.

Some Reflections on Gout.—G. Leven, of Paris, has been amusing himself in the *Clinique* recently by a sort of *reductio ad absurdum* of the various theories as to the etiology of gout; he works out his thesis by reference to the diet advised by different theorists. "If we forbid substances rich in purins," he says, "on the score of uricacidemia, the oxalic acid vegetables on the score of oxalemia, proteids in the name of autointoxication, salt in the fear of nephritis and edema, calcium bearing foods to prevent calcareous arteries, and substances containing cholesterin, such as eggs, brains, certain fats and a large number of vegetables, what remains for the unfortunate victim of gout?" We must not let our theories and our chemistry run away with us at the expense of what we learn by clinical observation. Leven had excellent results in one case of gout with the favorite French lactovegetarian diet. His patient was a man of fifty-six years with a tophus as large as a walnut in the elbow joint and all the classical symptoms of a chronic gout. He was strictly dieted for three weeks, then less strictly, still however omitting meat, for three months longer. His tophus disappeared, a functional impotence from which he had suffered for a year was cured, and he lost thirty pounds in weight; he had had no gouty symptoms whatever for nearly three years. We are much inclined to attribute these excellent results to the withdrawal of proteids; there is no doubt that the big, lethargic subjects do extremely well when their meat eating proclivities are curtailed and the bowels are kept soluble. Starving would produce the same result, but, as we have remarked before in these columns, it is almost impossible to induce these weighty gentlemen to starve, while they will be fairly happy if allowed bulky vegetable food which seems to do them no harm, especially if they drink plenty of milk.

Against Eugenics.[1] —Alfred Russell Wallace in his Social Environment and Moral Progress expresses his continued faith in the efficiency of natural selection to check the evils of humanity. He thinks the direct dealing with social evils is doomed to failure so long as widespread poverty, destitution and starvation are not diminished or abolished. He questions the failure of human nature, as maintained by modern eugenists, and thinks it is influenced by fundamental laws which will automatically abolish all social evils under just and equal economic conditions. The dread of overpopulation from the abolition of poverty is believed to be fallacious, due to ignorance of natural laws and to presumption in thinking we can cure social evils while leaving the causes which produced them unaltered. He pleads for moral progress and for sexual selection which will insure intellectual and moral progress in the future.

By such means the race may be elevated to the highest degree of civilization and well-being which it can attain in life on this earth.

The science of eugenics is not only totally unnecessary but is a greater source of danger to humanity than the temporary evils which it seeks to cure. It is believed to be presumptuous and irrational to deal by compulsory enactment with marriage and it is insisted upon that free selection in marriage will ultimately cure the evils which eugenists would cure by artificial means.

It must not be forgotten that free selection in marriage has been practised from time immemorial, and in every stage of social development. It is therefore responsible for the social ills from which we are suffering up to the present time. What probability is there that better results will come from such a system while we witness only increasing degeneracy in the nations and races around us. It would seem to us that the eugenists have decidedly the better of the argument.

Birth Registration.[2]—An editorial thinks it a startling fact that the returns of births in New York City by physicians and midwives during the first eleven months of 1912 were below the figures for the same months in 1911. A similar condition was noted in Cleveland and Chicago.

This means negligence of the statutory provisions which require the recording of a birth within ten days of its occurrence. This becomes the more noteworthy when cities like Chicago pay twenty-five cents for each birth certificate which is filed. The health commissioner of New York states that he will prosecute every violation of the birth registration law during 1913, and his decision is commendable. Birth registration being fundamental in the preparation of vital statistics no effort should be spared to procure complete and accurate returns.

Physicians are guilty of social mal-practice when they fail to conform to the responsibilities which the law imposes upon them, and there should be no hesitancy in penalizing those who are so engrossed in the commercial aspects of medicine that they give little thought or heed to their public duties. Birth registration cannot be complete without the hearty cooperation of the medical profession and so far as this is mandatory by law there is no excuse for failure to comply with the law.

Every municipality ought to follow the lead of Dr. Lederle in enforcing this law which deserves the commendation, interest, and support of the entire profession.

In the United States we are behind all other civilized countries, at least all the countries of Europe, in the preparation of vital statistics. The birth statistics being at the foundation of the entire system how grave is the responsibility of the physician who neglects his duty in this respect. One has only to look at the meager showing of the census in this particular to realize how much remains for the medical profession to do in order to bring this important department of social data to the plane of usefulness which the conditions of modern civilization demand.

A Medical Trade Union.[1]—Dr. E. Eliot Harris was recently made president of the newly formed American Society of Medical Economics. He declares that there has

[1] *Medical Review of Reviews.*
[2] *Ibid.*

[1] *Medical Review of Reviews.*

been no organized direction of the economics of medicine on the part of the profession, and he believes that the profession is now ready for such organization.

The following twelve objects have been declared to be the program of the new society:

1. To survey and study all matters of economics that can be practically applied for the benefit of the public health, and the betterment of the economic condition of the members of the profession.
2. To advocate and maintain a high standard of medical education and of professional conduct common to all physicians.
3. To expose remedy and suppress all forms of quackery.
4. To help in the enforcement of pure food and drug laws.
5. To punish dishonorable and unprofessional conduct in the practice of medicine under the authority of a medical tribunal.
6. To prevent fraudulent or deceptive advertising in connection with medical practice.
7. To investigate medical practice in general.
8. To aid in establishing certified pharmacies.
9. To oppose encroachments upon legitimate medical practice.
10. To limit and prevent the abuse of medical charity.
11. To assist in the extension of postgraduate instruction.
12. To lessen and adjust illegal and dishonorable practice of medicine.

This is certainly a noteworthy program and there is no doubt that there is great need of such an organization. If its work can be genuinely helpful without being inquisitorial or dictatorial it will deserve the support of every honest physician. It will readily be noted that there is a decided overlapping of some of its propositions.

The Eugenic Program.[1]—Davenport of the Carnegie Institute Station for Experimental Evolution at Cold Spring Harbor, N. Y., questions whether a system which drains effective persons of their income until they cannot afford to have children in order to secure funds to be spent in relieving imbecile parents of any expense of parentage is a good thing for the United States. This is exactly the system under which we are living, however the issues may be clouded. It is a fact that the state of New York spends one-fifth of its income on the care of the unfortunates in its institutions. To this must be added the cost of maintaining criminal courts and fire departments.

Rosanoff has estimated that nearly one-third of our population is more or less tainted with stigmata of insanity. The unfit are rapidly increasing in consequence of the cooperation of modern medicine and philanthropy which keep alive this class of the population and facilitate their reproduction. What is the alternative? We cannot let the weak die. We must shelter and feed the poor, give happiness to the feeble-minded, protect the insane, cure the tuberculous and the cancerous. We must prevent them from reproducing their kind.

Stimulating Reparative Cell-growth.[1]—An editorial notes that though Carrel has found it possible to transplant kidneys from one animal to another the transplanted organ eventually loses its function. In the study of cellular life he has found that cell growth may be accelerated by introducing certain tissue extracts into the medium which contains the cell or cells. The object of his studies in increasing the activity of cell formation was to diminish the time of the reparative processes in superficial wounds. He placed small fragments of tissue from a chicken's heart in a mixture of blood plasma, water and extractive from various tissues and compared the cellular growth of these fragments with that of similar fragments in plasma which contained no tissue extract. The tissue extracts were made from chicken embryos from six to twenty days old, from the spleen, kidneys and other organs of adult chickens, and from fragments of Roux's chicken sarcoma. Under suitable conditions of temperature the extracts caused the cells to grow from three to forty times as rapidly as did those which

[1] *Medical Times*, March, 1913.

[1] *New York Medical Journal*, January, 11, 1913.

were in plasma alone. The extract from embryos was the most effective in activating growth of all the substances tried. It is thought that if such stimulation of cell growth as occurs *in vitro* should also occur in animal life, a superficial wound could be healed in twenty-four hours and a broken leg in four or five days. Attention is called to the fact, however, that the stimulant effect of a tissue extract is limited to animals similar to the one from which the tissue was taken, hence we could not expect to stimulate reparative growth except by extracts prepared from the tissues of human beings. But it is hoped that a way may be found to obtain these results by means of extracts of tissues from animals which are closely allied to man. This subject is still entirely in the experimental stage and Carrel himself is reported to have said that the practical value of his studies, most interesting and remarkable though they be, has yet to be demonstrated.

Rural Sanitation.[1]—H. N. Ogden calls attention to the fact that the diseases in the rural population are not chiefly the contagious diseases which form so conspicuous an item in the general death rate of the country at large.

As there is no congestion in the population of the rural districts there is slight tendency to the spreading of disease. On the other hand, the high death rates are from lung diseases, influenza, liver and kidney disease and constitutional disorders in general. Efforts in rural sanitation should therefore be directed to the education of the farmer in matters relating to personal hygiene. There are no restrictions in the country as to the sanitation of buildings and grounds, such as obtain in cities. Consequently improvement in hygiene must come from instruction rather than from authority, and health officials should therefore improve every opportunity to teach sanitary laws. Many health officers may reply that they are not hired to do work as teachers. If this is true it means that their particular departments of health are badly organized and require reconstruction.

The following suggestions are offered as indicating hopeful lines of work:

(1) The granges of the state offer the most attractive possibilities in this direction and a health officer could find pleasant and useful employment at their meetings.

(2) There should be cooperation with the rural school superintendents and discussion of sanitary matters in the various school houses.

(3) Instruction may be given to the children of the country schools by their teachers after the latter have been properly posted by the health officer on the subjects upon which they should be informed.

(4) The health officer can occasionally work with the pastor of the rural church, addressing the people on sanitary matters, on suitable occasions, at the church.

In all these points the department of health is only in line with the tendencies of the times when it attempts to give to rural inhabitants the same advantages with regard to public sanitation which are enjoyed by the cities.

The Death of Sir Jonathan Hutchinson—By the death of Sir Jonathan Hutchinson on May 23rd, the medical profession throughout the world is the poorer. He was essentially a man of character, which perhaps is not extraordinary, seeing that he came of that peculiar body that has given so many men of moral force to the service of humanity—the Society of Friends. His distinguishing characteristics were unwearying industry, evidenced from his earliest days, an unusual keenness of observation, a compelling enthusiasm, a breadth of outlook, and great powers of logical deduction. To these must be added a benevolent disposition, directing the utilizing for the good of his fellow creatures, an unquestioning obedience to duty as it was made clear to him in the light of a religious sense of responsibility; and an unusual modesty.

Jonathan Hutchinson was born at Selby, in Yorkshire, of Quaker parents, on July 28th, 1828, was educated in his native town, apprenticed at the age of sixteen to a leading surgeon in York, and "walked the hospitals," as the saying was in those days, at St. Bartholomew's Hospital, London,

[1] *Medical Review of Reviews*, March, 1913.

under Sir William Lawrence and Mr. (later Sir James) Paget. He qualified as a member of the Royal College of Surgeons of England in 1850. In later years he became a Fellow of the College and filled in succession nearly all its offices, becoming President in 1889. He held at various times, and for a while all of them together, the post of surgeon at the Metropolitan Free Hospital, the London Hospital, the Royal London Ophthalmic Hospital (Moorfields), and the Blackfriars Hospital, for Diseases of the Skin. He insisted strongly on the importance of checking the general principles of medicine by observation of their manifestations in special diseases, and it was doubtless due to this philosophical view of medicine that he was enabled to throw so much light on venereal disorders through his studies of diseases of the eye and the skin. Many eponymous terms testify to the fruitfulness of the patient observation and lucid reasoning he brought to bear upon those subjects in the study of which he engaged himself. These are the well known "Hutchinson's teeth" of syphilis, forming part of "Hutchinson's triad" significant of hereditary syphilis; "Hutchinson's mask" in tabes dorsalis, "Hutchinson's facies" in opthalmoplegia, and "Hutchinson's pupil" in basal meningeal hemorrhage.

All these things bear witness in the industry, the observation, the logicalness, the breadth of view, to which we have referred above. Of his enthusiasm it is sufficient to recall the fact that in working out his theory of fish-eating as the cause of leprosy he took many journeys abroad for the purpose of studying the disease in districts where it prevailed—in 1869 to Norway, in 1899 and 1900 to South Africa, in 1901 to India and Ceylon, in 1906 to Switzerland, and in 1909 when he was in his 82nd year, to the Conference on Leprosy at Bergen in Norway. And even though his views on the origin of leprosy have not met with that general acceptance by the profession which rewarded his earlier discoveries of the far-reaching relationship between certain conditions of the eye, teeth and skin, and syphilis, or of those obtaining between cancer and local irritation, and of the importance of the "precancerous stage," they have at least helped to mitigate some of the fearful rigors which have been the lot of the poor leper in times past by showing that the contagiousness of the disease has been greatly overrated, and that many of the measures practised were unnecessarily cruel.

The systematic organization of post-graduate teaching in London received great help from him, and the London Polyclinic, which owed its existence largely to his efforts, had the powerful aid, not only of his purse, but of his teaching. To it he gave his marvellous collection of pathological drawings, which has perhaps no equal in the world. Nor did his efforts for the spread of education confine their expression to medicine. In Selby, his native town, and in Haslemere, the home of his later retirement and the place of his death, he established museums of great interest and value, compassing not only natural history but also historical, geographical and biographical knowledge.

Honours came thick upon him. His merits were fully recognized during his life, and important duties entrusted to him also bespoke the confidence reposed in him by the public. Professionally, his attainments were recognized by his elevation to the presidential chairs of the Hunterian, Pathological, Ophthalmological, Neurological and Medical Societies of London, as well as of the Royal Medical Chirurgical Society and of the Third International Congress of Dermatologists and by the Professorship of Surgery and Pathology at the Royal College of Surgeons; academically the coveted Fellowship of the Royal Society was his, and Oxford, Cambridge, Glasgow and Edinburgh Universities bestowed on him their LL. D. degree, Leeds its D. Sc., and Dublin its M. D., *honoris causa;* while public confidence reposed its trust in him when he was appointed a member of the Royal Commission on Smallpox Hospitals in 1884, and from 1890 to 1896, of the Royal Commission on Vaccination.

Last of all for his modesty. It was not until after he had several times declined the honor, for which, perhaps, his ancestral faith was in part responsible, that in 1908 he accepted from his sovereign a knighthood; and even then he never changed his doorplate, which to the last bore the simple inscription, "Mr. Hutchinson."

ETIOLOGY AND DIAGNOSIS.

The Diagnosis of Acute Anterior Poliomyelitis.[1]—The most valuable early signs, says Zahorsky, are muscular twitchings, especially during sleep. These may be fibrillary or often involve a whole joint or limb. The presence or absence of muscular twitchings must always be established. Ask the attendants to watch the child carefully, or the physician should observe the child while asleep.

The physician should carefully examine for the following signs:

The Facial Sign.—The face appears drawn and anxious, or has an expression of fear, the eyes are staring, pupils contracted and the eyelids do not wink. It is this facial expression which directs one's attention to the cerebrospinal system.

The Vasomotor Sign.—Even very early some vasomotor symptoms will be observed. The face may be unduly flushed, the arms or thighs show irregular areas of congestion and pallor depending on what part of the cord is affected. Tache cerebrale is an early sign.

Spasticity of the Flexor Muscles.—In trying to extend the limbs some spasticity of the muscles will be observed. Kernig's sign is present. Brudjinski's neck sign may also be elicited in some cases. But in studying these signs one is struck by the fact that they are not so definite as in meningitis, the muscles give way after little motion.

The Reflexes.—In the early stages the reflexes are exaggerated, but by the second day this may not be apparent. Pressing along the course of the nerves in the limb produces contractions of the fingers or toes.

Functions.—The child should be tested for muscular function. A great unsteadiness of the muscles can usually be observed. A tremor of the hands on attempting to grasp anything or an awkwardness on attempting voluntary motion, as in standing or trying to walk, are valuable signs.

Tenderness of Peripheral Nerves.—The nerves of the trunk and extremities should be pressed in order to test their tenderness. The value of this sign should really be great, but as the children are frightened and protest against being touched in so many diseases, it is difficult generally to decide whether tenderness exists.

Lumbar Puncture.—For the purpose of excluding meningitis lumbar puncture is often necessary. Its value in establishing the presence of acute anterior poliomyelitis has been exaggerated. The only suggestive sign is an increased number of cells in the spinal fluid, 100 to 500 in each cubic millimeter. We do not know enough of the cell counts in other conditions, such as in the meningismus of pneumonia or gastroenteric infections to make a positive diagnosis from an increase in the number of cells.

In practice we should treat these patients even on a strong suspicion. We may not be certain that the disease is infantile paralysis, but we should take the proper prophylactic and therapeutic precautions.

[1] John Zahorsky, M. D., *Med. Fortnightly*, Aug. 25, 1913.

The Diagnosis of Extra Uterine Pregnancy.[1]—The diagnosis is sometimes extremely easy, at other times difficult. If the history and the physical signs both suggest extra-uterine pregnancy, the diagnosis as a rule is simple, but in many cases one is given only a history of rather irregular menstruation, and the physical signs may be obscure on account of pain and tenderness. Take first the diagnosis when the embryo is alive. Although the uterus is definitely enlarged and the cervix is soft and bluish, the size of the uterus does not correspond with the date of the pregnancy. Hegar's sign cannot be obtained, and the uterus feels firmer and more resistant, less elastic than in intra-uterine pregnancy. At one or other side of the uterus, or at one side and behind, is found a rounded swelling, rather soft and sometimes tender. If watched this swelling will be found to increase in size rapidly—a sign which is of great importance in the diagnosis between living extra-uterine pregnancy and a tubal mole. Most cases are not seen until a tubal mole has been formed, i. e., bleeding has occurred into the ovum, and has converted it into a blood-mole, such as is seen sometimes in the uterus, bringing the pregnancy to an end. In these cases there is nearly always a dark, bloody discharge from the uterus, sometimes accompanied by the passage of decidua. As a rule consideration of the time which has elapsed since the last normal period will show that neither the uterus nor the swelling at the side of it is large enough to contain a living ovum of the size that would be expected.

Cases with severe internal hemorrhage.—When severe internal hemorrhage has occurred as the result of rupture of the tube, or of tubal abortion, the diagnosis as a rule is easy. The patient has evidently had some severe intra-abdominal accident which has caused severe pain, fainting or collapse, followed by distension of the abdomen, and in many cases, by vomiting. She is blanched, the pulse is small and very rapid—120 to 140. The whole abdomen is usually distended to a greater or less degree and hypersensitive. It may be specially sensitive on the side on which the pregnant tube lies, but a characteristic point is that there is universal hypersensitiveness. If the patient is seen soon after the hemorrhage takes place, there will probably be nothing to be made out by examination of the abdomen, except that the skin is white, the abdomen, without being tense, is somewhat distended, and is hypersensitive—no lump will be felt. On vaginal examination a little dark blood will generally be seen coming away, and it may be possible to say that the uterus is enlarged, and that there is a feeling of fulness

[1] H. R. Andrews, F. R. C. P., *Med. Press and Circular*, April 2, 1913.

in Douglas' pouch, without any lump or any tension.

The most common mistakes made in these cases of severe internal hemorrhage are diagnosing perforation of the appendix, or of a gastric duodenal ulcer, or twisting of an ovarian tumor. The physical signs may be much alike. There is, however, no evidence of severe hemorrhage, and even if there has been no period of amenorrhea to point to a correct diagnosis, the slight loss of blood from the uterus ought, as a rule, to suggest it. It is rare for a twisted ovarian tumor to be too small to be felt on a careful bimanual examination.

Pelvic hematocele.—If the intraperitoneal hemorrhage has not been fatal, and the patient has not been operated upon, a pelvic hematocele is formed. The blood gravitates into Douglas' pouch, and forms a mass of clot filling the pelvis, and, if sufficiently large, rising up into the abdomen. It is roofed over by adherent coils of intestine, while anteriorly it is in contact with the uterus, broad ligaments, bladder and lower part of the anterior abdominal wall. In some cases the blood occupies the space between the uterus and the bladder, but it usually pushes the uterus upwards and forwards. Abdominal examination shows a tender, fixed swelling, the upper part of which, at any rate, is resonant on light percussion. On vaginal examination the cervix is often high up, sometimes out of reach; Douglas' pouch is occupied by a tense swelling which may bulge downwards to a considerable extent. Fluctuation may sometimes be obtained between the fingers in the posterior fornix, and the other hand on the lower abdomen. Later, when absorption of the blood has begun, the contents of Douglas' pouch may have a characteristic lumpy, irregular feel. It is common to find the temperature raised a degree or two in cases of pelvic hematocele. As a rule these physical signs, with the history of anemia, and the brownish discharge from the uterus, makes the diagnosis certain.

Differential diagnosis.—Probably the most common error is mistaking extra-uterine pregnancy for threatened or incomplete miscarriage. It must be remembered that uterine bleeding in extra-uterine pregnancy is seldom, if ever, severe, and conversely pain is not a marked symptom in threatened miscarriage. Bleeding in early pregnancy must never be attributed to a threatened miscarriage until a careful bimanual examination has been made.

The condition which sometimes causes a difficulty in diagnosis is the association of ovarian cyst with normal pregnancy. If bimanual examination is easy, the elasticity and globular shape of the uterus and the presence of Hegar's sign will show that the pregnancy is intra-uterine. Simultaneous intra- and extra-uterine pregnancy is not common.

Inflammation of the appendages giving rise to irregular bleeding and pelvic pain may be mistaken for tubal pregnancy. A careful history will sometimes clear up the mistake. There are no signs of pregnancy; the body of the uterus is not enlarged; the cervix is not softened. However, as the mistake is likely to be made only when the presence of a mole in the tube is suspected, possibly some weeks after the death of the ovum, the uterus may not be much enlarged, and with a rigid abdominal wall it is difficult to make out its exact size. In some of these cases which do not come to operation, it must remain doubtful whether there is tubal pregnancy or tubal inflammation.

Tubal rupture and abortion.—In the formation of the placenta in the tube the young chorionic villi burrow deeply into the tubal muscle, and may reach the peritoneal covering. If they destroy the peritoneal coat, tubal rupture has occurred. In most cases the term "perforation" would better describe the condition. Two or three points may be seen on the tube where the peritoneum has been destroyed, and the rupture has been sealed by a little patch of fibrin. These are spoken of as "concealed ruptures." It must be remembered, however, that there is an intervillous space filled with blood which has poured out of maternal vessels, destroyed by the trophoblast, in the formation of the placenta. If this intervillous space communicates with a perforation of the peritoneal coat, blood will escape into the peritoneal cavity. In another form of rupture a large blood-vessel is destroyed by the trophoblast. A rush of blood may break through one of the weak spots described as "concealed ruptures," so that the artery bleeds straight into the peritoneal cavity. It is not very uncommon, when operating, to find blood spurting out of a hole of the tube wall.

By the term "tubal abortion" is meant that bleeding occurs into the lumen of the tube. The ovum is not really inside the lumen of the tube. Just as in intra-uterine pregnancy there is a decidual cavity present up to about the end of the third month, so in tubal pregnancy the tubal lumen remains, although it is distorted by the ovum which is bulging into it from one side, but that aspect of the ovum is covered by tubal mucous membrane, with a certain amount of muscle. Perforation of this also may take place in just the same way as the perforation of the peritoneal coat and bleeding may occur into the lumen of the tube (tubal abortion). If the abdominal ostium of the tube is open, blood will run out into the peritoneal cavity, and will produce the same symptoms as if tubal rupture had occurred. Sometimes there is a history pointing to repeated slight attacks of intraperitoneal bleeding. In such cases a diagnosis of tubal abortion with the ovum remaining *in situ* can usually be made with more or less certainty. In some cases the ovum itself becomes loosened and is expelled from the abdominal ostium into the peritoneal cavity with more or less bleeding—(*complete* tubal abortion). If, on the other hand, the abdominal ostium is closed by adhesions, blood will collect inside the tube. The fact that tubal abortion has occurred into a closed tube or that a mole has been formed does not preclude the possibility of tubal rupture. The destructive action of the

trophoblast is the essential factor in rupture of the tube, but in some cases there is distinct evidence of some increase of pressure being responsible for the actual rupture. Bimanual examination, some effort made by the patient, vomiting, or straining, has been followed by sudden pain and collapse, the tube having given away at a weak spot. The tube is sometimes found so thin in places as to be translucent.

The Diagnosis of the Status Thymo-Lymphaticus.—Schridde refers to the frequency with which this condition is found in cases of sudden death amongst children in which no other cause of death is apparently present. He enumerates the following appearances as characteristic of the condition:—Above all the characteristic pallor of the delicate skin is striking, while there is usually a well-marked development of subcutaneous fat of a pale yellow color and unusual moistness. The thymus gland is more or less enlarged, and there is associated a general hyperplasia of the lymphatic parenchyma. The Malpighian corpuscles of the spleen as well as the spleen itself sometimes are enlarged. There is frequently a remarkable hyperplasia of the lymphatic tissue in the stomach and intestines, while the papillae at the base of the tongue and the tonsils of the throat and pharynx are enlarged. The mesenteric glands are increased in size, and not infrequently in places where no true lymphatic tissue is present lymphatic nodules are developed, as, for example, in the mucous membrane of the trachea and vagina, in the connective tissue of the liver, kidneys, the skin, and in the bone marrow. Lastly, there is found in true cases more or less well-developed dilatation and hypertrophy of the left ventricle of the heart. The appearances may not be well marked or characteristic in certain cases, and in them only a microscopic examination of the tissues will enable a diagnosis to be made.

The author regards hyperplasia of the medulla of the thymus gland as a special and characteristic condition of the disease, and suggests that owing to a failure to recognize this fact many investigators have described the thymus gland in cases as normal. During life, he states, a certain criterion of the status thymo-lymphaticus is to be found in the constant presence of hyperplasia of the glands at the base and sides of the tongue.

Cancer of the Stomach.[1]—Dr. William J. Mayo, of Rochester, Minn., considers this a curable disease. He compared the findings in 1,000 cases of carcinoma of the stomach with 1,000 of gastric ulcer, finding low acidity and absence of free hydrochloric acid in the former, and relatively high in the latter. Seventy-five per cent. of gastric carcinoma are located at the pyloric end, and ten per cent. in the cardia. Nearly all give a history pointing to antecedent ulcer or other stomach lesion. There is a definite history of ulcer in fifty per cent. An absolute diagnosis is not always possible, but we should suspect this condition early, so that operation may be of benefit. Two facts should be remembered as important for diagnosis: 1. The presenec of a tumor; 2. Remnants of food in the stomach ten or twelve hours after a test meal of half cooked rice and raisins. He gives the following results of operation: Mortality from exploratory operation, 0.6 per cent.; mortality from radical operation, ten per cent. in all cases; in early cases, about five per cent. Cures for five years have been twenty-five per cent., and for three years, thirty-eight per cent. In operating, a portion of the pancreas, if this is affected, may be removed and the closed duodenum sutured in this place. Moderate involvement of the pancreas does not necessarily preclude operation. Palliative operations also have a field of usefulness.

[1] *Journ. A. M. A.*, June 28, 1913.

TREATMENT.

Modern Treatment of Ozena.[1]—If the severity of a disease is to be determined by the number of remedies recommended for it, ozena must be regarded as a very intractable illness. Indeed, there are still many physicians who consider this form of atrophic rhinitis well nigh incurable. This applies especially to those who believe that ozena is always a congenital affection, dependent upon a malformation of the nasal fossae. The majority of physicians of the present day, however, are of the opinion that the disease is not of uniform etiology and that while it may be congenital it is just as frequently acquired, usually during childhood, to grow worse as the patient gets older. The lesions represent trophic processes resulting from disturbances in the nutrition of the mucous membrane. It thus will often be possible to check the process and even bring about a partial or complete cure.

Examination usually shows a much atrophied middle and lower turbinated bone, covered with a granular and brittle mucous membrane. The nasal fossae are dilated ad maximum so that the posterior naso-pharyngeal wall can be readily seen. The mucous membrane is still in a condition of irritation so that a thick, purulent secretion is voided, which readily dries to crusts. These are generally voided every second to fourth day in the form of large, fetid casts. Frequently, an atrophic catarrh of the same nature involves the deeper air passages, even as far down as the trachea. Infection of the accessory sinuses is not rare and will materially increase the amount of discharge. The actual cause of these trophic disturbances is still unknown.

[1] *Mercks Archives*, Sept., 1913.

In very young children, usually no other measures except cleanliness are possible. For older patients the application of hot air has been highly recommended but it alone cannot bring about a cure. Serotherapy was much in vogue a few years but has certainly not accomplished what it promised. The same may be said of a form of respiratory gymnastics introduced by R. Foy. In this method compressed air and oxygen are blown into the nose by means of a rather complicated apparatus. There can be no doubt that the nose is freed from discharge and the circulation in the mucous membrane is improved, but the procedure is extremely tedious and will hardly ameliorate the more advanced stages of the disease. Much better results will be obtained from massage and the use of nasal douches, though great patience is necessary even here. If this treatment is begun early, between the eighth and sixteenth years of life, it is even possible to restore the nasal mucous membrane to its normal appearance. One great disadvantage lies in the fact that the treatment must be persisted in for many years and the patients kept under steady control, which is not always possible. The character of the fluid employed in the nasal douche plays a less important rôle, for a selective action upon ozena is shown by neither the alkalies nor the antiseptics. The douching should be done rhythmically with the respiratory movements and both an ante and post nasal douche should be employed. About one quart of fluid may be used twice daily, to be followed by an oil spray. The second most important factor in the successful management of ozena is the use of a proper vibratory massage upon the atrophic mucous membrane. This massage should be employed twice a week and followed each time by a spray of silver nitrate solution varying in strength from 1:20 to 1:5.

The injection of liquefied paraffine under the mucous membrane of the inferior turbinated bone has proven a very successful method of treating ozena. In some cases the mucosa is so brittle that the paraffine will not stay in place; here it is necessary to first treat the patient for some time with the other methods. Many cases have been observed where the paraffine has remained in situ seven to ten years and where the turbinated bones appeared voluminous, though pale and yellow in color. All these patients are either considerably improved or cured of their disagreeable illness.

Wherever the discharge is excessive or persists despite treatment, a sinusitis, usually of the maxillary sinus, must be suspected. The cavity here must be irrigated or a radical operation performed. General treatment calls for the use of tonics and sometimes the iodides.

The Treatment of Asthma.[1]—According to Dr. Prill the treatment of asthma must consist of hygienic, dietetic and medicinal medication. The hygiene includes life in the open air, with avoidance of climates of high altitudes, or where the winds are strong, where the barometric or thermometric variations are extreme. Humidity is bad for asthmatics. The wearing of woollen under-garments, moderate exercise, hydrotherapy, massage and alcoholic rubbings, followed by dry friction, are recommended. As regards diet, moderation, particularly at the evening meal (at which meats should be excluded) must be observed. He forbids game, pork, preserves, cheese, tomatoes, and asparagus especially. Tobacco and alcohol, he insists, are better avoided, and coffee should be drunk only in moderation. The medicinal treatment is indispensable. The use of iodide of potash is essential, and is to be given in daily doses of ½ to 1 gramme per day. Prill recommends the following formula:

℞. Kalii iodati, 5.00.
Aq. dist., 150.00.
Antipyrini, 1.00.
Glycerini, 70.00.

Sig.—Three tablespoonfuls daily, after meals.

Arsenical medication is also of value. The sodium arsenate, in the form of Fowler's solution, may be given to children over two years old in daily doses of 0.0002 for each year of age, and to the adult half a centigram. Dr. Terrai has recommended the following prescription:

Acid arseniosi, centigrammes, .25.
Mucil. gumm. arab. } aa. q.s.
Aq. destill. }
Ut fiant pilulæ No. 100.

Sig.—Thrice daily one pill; to be taken after meals. To be used for months with intervals of 10-12 days.

Trousseau has recommended the following prescription:

℞. Extr. belladonnae } aa. centigramma
Pulv. radic. belladon. } unum, 0.01.
F. cum talibus dosibus pilulæ.

Sig.—Give one daily and increase every other day with one pill.

The tincture of belladonna may be used, two drops for each year of age, in the child. Von Noorden uses the sulphate of atropine, 0.0001 grn. daily (one-tenth of a milligram), to be increased gradually until the daily dose is four-tenths of a milligram. The association of the various agents mentioned above may be used as follows: (*a*) for ten days in the month belladonna in its various forms may be administered; (*b*) for the rest of the month should be employed the following:

Decocti rad. senegae (3:100), 100.00.
Aq. dest., 100.00.
Tinct. lobeliæ, 5-10.00.
Arseniosi natrii, 0.004-0.10.
Kalii iodati, 1 to 5.00.
Kalii bromati, 1 to 10.00.
Cocaini hydrochlorici, 0.20.

Sig.—One tablespoonful twice daily.

During this time, the patient should smoke. every other day, one of the Zematone, Nie-

[1] *Med. Press and Circular*, Sept. 17, 1913.

mayer or Wirth cigarettes, or one made as follows:

℞. Folia bellad., 0.30.
Folio, hyoscyami,
Folia daturæ, aa. 0.75.
Folia phellandii, 0.05.
Macerate in a mixture of
Gummy extr. opii, 0.015.
Cherry-laurel water, q. s.

Dry, cut fine, and make cigarettes with paper impregnated with the same liquid.

Electro-therapy has given excellent results. Every eight days the patient should get a pill containing 0.10 gm. aloes. During the attacks the windows should be opened, avoiding possible chilling; sinapisms should be applied to the feet; a little of the following ointment should be inserted into the nostrils:

℞. Cocaine, 0.05.
Mentholi, 0.10.
Vaselin, 10.00.

The patient should inhale 5 to 15 drops of pyridine on a handkerchief, and smoke a Despic cigarette. He may inhale the vapor of water containing carbolic acid. Morphine (0.01) may be injected. If the heart is feeble, administer caffeine, or digalen. If asthma is a symptom of various morbid conditions, as bronchitis, emphysema, heart and renal disease, these should receive attention.

Treatment of Cough.[1]—Cough is a centrifugal reflex phenomenon following centripetal excitation, having its seat in any part of the organism.

It is thus, says Dr. Hirtz, that one hears of nasal, auricular, gastric, hepatic, ovarian and cerebral cough. To tell the truth, cough has only been produced experimentally by exciting the respiratory tract, and the existence of cough of visceral origin is only proved by old text-books.

Cough due to a lesion of the respiratory apparatus can be very efficaciously relieved by treatment appropriate to the affection in cause. Consequently, it is important to make a complete examination of the patient so as to arrive at an exact diagnosis of the affection.

Opium and its Alkaloids.—It is almost always easy to relieve cough by the aid of opium or its alkaloids. It acts by analgesing the inflamed surfaces, by diminishing the excitability of the motor nerves and by calming the spasms of the muscular fibres; it also diminishes the secretions. These different properties make opium an heroic remedy for cough, but by reason of its activity it can become really dangerous by suppressing the secretion and provoking in the aged encumbrance of the bronchi by mucosities. Children ill support opium, especially those whose kidneys are out of order.

Moderators of the Reflex.—Bromide of potassium, belladonna, hyoscyamus, stramonium. These agents act by diminishing the reflex power. Bromide of potassium is frequently prescribed for convulsive cough; it provokes anesthesia of the mucous membrane. Belladonna and atropine produce dryness of the throat and of the larynx. They should not be prescribed where expectoration is undesirable.

Anti-spasmodics.—Among the anti-spasmodics, valerian, cherry laurel water, aconite, chloroform water, are chiefly employed. Aconite relieves the cough by acting on the peripheric nervous system and by diminishing the congestion, while chloroform water is eliminated by the bronchi, producing a certain amount of anesthesia.

Drugs Acting on the Secretion.—Certain drugs have the reputation of acting on the bronchial secretion, either by diminishing it (tannin) or by diminishing the viscosity (bicarb. of soda, hyposulph. of soda, tar, terpine).

Expectorants, Emetics.—The best known are senega, soap bark, oxide of antimony, hippo.

Sulphurous Waters.—Indicated in cough due to chronic and non-congestive lesions of the larynx, bronchi. (Uriage, Luchon, Cauterets, Barèges, Enghien, Allevard, etc.).

Cough in Laryngitis and Tracheitis.—Here it is not necessary to have recourse to heroic measures, as the lesion can be successfully treated by inhalations and hot compresses to the front of the neck.

Menthol, 10 gr.
Thymic acid, 10 gr.
Tincture of eucalyptus, 2 dr.
Phenic acid, 10 gr.
Cherry laurel water, 3 oz.
Tincture of benzoin, ½ dr.

A teaspoonful in a small bowl of boiling water and inhaled through a funnel.

If this treatment is not sufficient, opium and aconite may be prescribed.

Acute Bronchitis.—Warm drinks, opium, or its derivatives and antispasmodics to relieve the nervous system. Each practitioner has his special formula. In the chronic form, the balsams already mentioned are indicated.

Pleurisy.—Patients suffering from pleurisy are frequently tormented by a little dry cough coming on by change of position. This cough can be relieved by revulsives and anti-spasmodics.

Whooping Cough.—Here opium in all its forms gives good results (paragoric elixir at the dose of five drops a day for each year of the patient). Bromoform, antipyrin, chloral have also been tried with variable results.

Pneumonia.—Expectorants, dry or wet cupping, bleeding, etc.

Pulmonary Tuberculosis.—It is especially in consumption that it is necessary to distinguish between the dry cough that brings up nothing and the expectorating cough which drains, so to speak, the lungs. The cough can be re-

[1] *Med. Press and Circular*, Oct. 8, 1913.

lieved by the various agents mentioned, but morphia, which is ill borne by consumptives, should be prescribed with precaution.

Treatment of Burns by the Application of Alcohol.[1]—Milligan has described a method of treating burns which he has found more satisfactory than the current methods. In burns of the second, third, and fourth degree, cleansing with antiseptic lotions is usually recommended. The moisture causes the sloughs to become septic—in other words, converts dry into moist gangrene. Frequent and painful dressings are then necessary. Milligan excludes water from the treatment, and applies alcohol. He thus prevents moist gangrene and inflammation and saves much suffering. A child, instead of spending several months in a hospital, can soon have the burn grafted and run about. The details of the method are as follows: If the patient is in such a state of shock that he cannot stand an anesthetic, a watery saturated solution of picric acid is applied on lint and a protective is put over this to prevent evaporation. On the next day the protective is lifted and more of the solution is poured over the lint, which is not changed. On the third day the patient is either obviously going to die or can stand an anesthetic. If the picric acid be continued any longer the burn will become offensive. Dr. Milligan has not found the picric acid treatment of burns satisfactory, and simply uses it in the absence of anything better for a patient in a condition of shock. Moreover, the acid is absorbed and may cause toxic symptoms. If the patient is in a condition to allow the administration of an anesthetic he is given chloroform, and the burns are cleansed with sterile gauze wrung out of 70 per cent. alcohol. The whole surface of the burn and the surrounding skin is rubbed vigorously. Blisters are rubbed off with all dead tissue. No blister is pricked, nor is the dead skin allowed to remain to keep fluid pent up only to be infected by the organisms of the skin. Dead tissue is more effectively and easily rubbed off than removed with scissors and forceps. After thorough cleansing a dressing of sterile gauze wrung out of the alcohol is applied. Over this dry gauze and wool are applied, and then a bandage. Under chloroform the same process is repeated daily. Every other day will not do, for the burns begin to be septic and offensive. The parts are rubbed, not wiped, with gauze wrung out of alcohol. On beginning to remove the dressing it will be found stuck to the surface. By pulling upon it bits of dead tissue are satisfactorily removed. The dressings are continued for about eight days, when burns which have not destroyed the whole thickness of the skin will be found in such a clean state that boroglyceride gauze or gutta-percha tissue can be applied as a dressing without pain. It is striking how rapidly the burns now heal under the boroglyceride. If they become infected again, one cleansing with alcohol, followed by one alcohol dressing will render them again aseptic. Burns which involve the whole thickness of the skin take longer on account of the sloughs. Under the alcohol treatment these become black, dry, and shrivelled up, and can be torn off or dissected with a sharp scalpel and forceps. Valuable time will be lost if the surgeon waits for the sloughs to separate. The best results follow the cutting off of the sloughs, for they are not sodden, and the surface is aseptic. A scalpel must be used, for it leaves a clean cut, with no track of dead and injured cells as a scissors does. Dr. Milligan has employed this treatment during five months for a great number of burns in the Children's Hospital, Melbourne. One case of extensive and deep burns was fatal. Two large duodenal ulcers were found at the necropsy, but at the time of death (twelfth day) the burns were in an aseptic state, with all the sloughs removed. In all the other cases healing was most satisfactory. They included burns and scalds of almost all parts of the body, some deep, some on the face, and some on the buttocks, where cleanliness is difficult to maintain in young children. The daily use of chloroform did not prove in any way injurious. There was never any vomiting to interfere with the taking of food, so necessary for a burnt child. Anesthesia must be employed, otherwise the application of alcohol would be too painful. When the children recover from the anesthetic they feel no pain, and are quite happy.

[1] C. D. Milligan, M. D., *Australian Med. Jour.*, June, 1913.

The Treatment of Chorea.[1]—The treatment of chorea is essentially that by arsenic. Antipyrin and other antinervines have not given the same satisfaction.

To administer arsenic with success, the method of Aran and Siredey should be observed: these authors employed a solution of arsenious acid (1-1,000) known as Boudin's solution. This solution is weaker than Pearson's (1-600). They prescribed in large doses, 25, 30, 35 grammes a day, but never prolonged its administration. In acting thus, accidents due to intolerance were possible, but they avoided accumulation; a greater risk is derived from prescribing even very small doses of arsenic during weeks and months than in giving large doses for a few days. Prof. Comby applied this method to hundreds of patients for several years with but one accident (arsenical polyneuritis) and a few cases of intolerance, vomiting, gastric disturbance.

He commences by 5 grammes of Boudin's solution in a bottle of 4 oz., and increases the

[1] *Med. Press and Circular*, June 4, 1913.

dose daily by 5 grammes up to 25 grammes.

At this point, he diminishes by the same proportion to the initial dose. The whole arsenical treatment lasts exactly 9 days.

His method of proceeding is as follows:

Rest in bed for a fortnight with relative isolation, no amusement with other children allowed, no intellectual work.

Milk diet, a cup of milk every two hours: this diet favors tolerance; it is replaced by the lacto-vegetarian diet on the 10th day, that is to say, when the arsenical treatment is terminated.

First day.—Before each cup of milk, a tablespoonful of—

Boudin's solution,	5 grm.
Sp. of orange,	20 grm.
Water,	100 grm.

is given.

Second day 10 grm., third day 15 grm., fourth day 20 grm., fifth day 25 grm., sixth day 20 grm., seventh day 15 grm., eighth day 10 grm., ninth day 5 grm.

If, in the course of the treatment, vomiting is observed, the treatment is suspended for one day; if it returns the arsenic is suppressed.

The above doses are for children over 7 years of age. Below that age the doses would be: 3, 6, 9, 12, 15, 12, 9, 6, 3.

This treatment is generally well borne, and the effects are rapid. At the end of a week the movements have ceased, and a week later the chorea is cured.

An important observation: Before prescribing the arsenic, the integrity of the kidneys should be examined, as if albumin was observed arsenic should not be given. Further, in very warm weather provoking an abundant perspiration, diminishing thereby the urinary secretion, arsenic would be ill tolerated, as also antipyrine and any other active agent.

In such a case, the wet sheet is the better treatment; it calms the choreic excitement.

It is possible to replace Boudin's solution by that of Pearson's, provided that it is borne in mind that the strength of the latter is nearly double that of the French solution.

Consequently, half of the above progressive doses should be prescribed.

The Use of Pituitary Extract in Obstetrics.[1] Watson sums up his experience with pituitary extract as follows:

1. Pituitary extracts have a powerful effect in inducing and in strengthening uterine contractions.

2. The type of contractions induced is similar to that which occurs normally, although at first there may be a tendency to prolongation of the pains.

3. Such prolonged contractions result in slowing of the fetal heart, but the child is seldom in danger.

4. When given in the late part of the first and in the second stage of full time labor the polarity of the uterine contractions is not interfered with, but in early abortions and early in the first stage a simultaneous spasm of the os may occur.

5. Its chief field of usefulness is in the first and second stages of labor, when there is delay due to feebleness of the pains, alone or when combined with other complications, such as malpositions of head, malpresentations, multiple pregnancy, slight narrowing of the pelvis, etc.

6. In the induction of abortion, in the treatment of abortion already in progress, and in incomplete abortion, its action is so uncertain that it is not to be recommended, except in cases where the os is widely dilated.

7. In the induction of premature labor its effects are uncertain, but if sufficient dosage be given they may be good.

8. In the induction of labor at full term and after better results are obtained than in premature cases.

9. It gives good results in many cases of post-partum hemorrhage, but is not superior to the various preparations of ergot. It has the power of sensitising the uterus, so as to allow these preparations to act more powerfully, the combination being most effective.

10. It is a useful adjunct in the treatment of placenta-praevia, used in conjunction with rupture of the membranes, the use of hydrostatic dilators, or turning.

[1] B. P. Watson, M. D., *Can. Med. Assn. Jour.*, Sept., 1913.

The Treatment of Boils.[1]—M. Mauté's method of treating boils is as follows:—Apply to each boil a small piece of compressed cotton-wool (*cataplasme*) the exact size of the tumour and maintain in position by narrow strips of adhesive oxide of zinc plaster. The part should not be enveloped in layers of cotton-wool, as in the case of ordinary wounds. As soon as suppuration is ended all dressing is removed. If the boil remains hard and inflamed, a little collargol ointment may be applied—

Collargol, 1 dr.
Vaseline, 1 oz.

Where a group of boils exist, each one should be treated separately; no large occlusive dressings should be applied. To disinfect the surrounding skin and thus avoid re-inoculation, lotions of spirit of camphor may be used, after which the region is powdered with

Talc powder, 4 oz.
Peroxide of zinc, 1 oz.

The general treatment consists in inoculations of antistaphylococcic vaccine. The vaccine employed by M. Mauté is prepared with

[1] M. Mauté, M. D., *Jour. des Practiciens*, July, 1913.

the microbe of the patient (auto-vaccine). Each cubic centimetre contains 1,000 millions of microbes. Where the furunculosis is in the acute stage, an injection of a quarter of a c. c. (250 millions) is made every four days; after the fourth injection the dose is increased to half c. c. (500 millions), given once a week, or seven or eight injections in all.

In 80 per cent. of the cases the boils will not return after the first four injections; in 15 per cent. it may be necessary to prolong the injections; in the remaining 5 per cent. the treatment fails, but these cases are generally due to diabetic intoxication. Laxatives are useful throughout the treatment:—

Sulphate of soda,
Rochelle salt,
Bicarbonate of soda, aa 1 oz.

Two teaspoonfuls each morning in a glass of hot water.

The Care of the Throat in Scarlet Fever.[1]—Hittin discusses the throat conditions in scarlatina and concludes with the following rules:

1. Examine the throat daily in every case of scarlatina, no matter how mild.
2. On the appearance of a membrane, make a culture to establish the identity of the causative organism.
3. While awaiting the pathologist's report, administer diphtheria antitoxin if the case warrants it.
4. Do not consider all membranous anginas diphtheritic without a bacteriological culture.
5. Do not be afraid to use antitoxin when throat is diphtheritic, irrespective of the primary disease.
6. In the so-called pseudo-diphtheria, antitoxin may be of service.
7. Do not use concentrated solutions for spraying or gargling; all we desire is cleanliness and not antiseptics.
8. If local treatment disturbs the child, do not persist.

Sexual Neurasthenia.[2]—Robinson considers the treatment of sexual neurasthenia in detail and says that the drug treatment of neurasthenia plays a secondary role, and what we said about drugs in the treatment of impotence applies with almost equal force here, except that we would emphasize the great value of strychnine.

Some consider strychnine *the* sovereign remedy in neurasthenia. Somebody has said, "what morphine is in painful conditions, strychnine is in neurasthenia." I give it here, the same as in impotence, in large doses, and frequently hypodermically. It is here that the compound syrup of hypophosphites, the compound glycerophosphates, lecithin, neuro-lecithin, and similar preparations prove signally beneficial. Arsenic often works wonders. The following simple combination is very good:

Arseni trioxidi,	gr. 1-30
Strychninæ sulphatis,	gr. 1-20
Calcii glycerophosphatis,	grs. 2
Massae ferri carbonatis,	grs. 2

M. F. pil. vel caps. No. 1, D.t.d. No. 30.
Sig.: One t. i. d., p. c.

Lecithin (neuro-lecithin) is useful, and small doses of the thyroid and the adrenal glands sometimes prove singularly and mysteriously beneficial. Perhaps we have no right to use the word mysteriously, for there hardly is any doubt now that sexual neurasthenia, with all its symptoms, may be caused by some disease or deficiency of the thyroid gland.

One thing we must always remember in the drug-treatment of neurasthenia: to change the treatment frequently (if it be only the form—from solid to liquid or *vice versa*—or the vehicle) and to intermit every week or two for two or three days altogether.

GENERAL TOPICS.

Some Rules for the Use of Anesthetics.[1]—Tuckler in completing his paper draws the following conclusions:

1. Chloroform and ether are perfectly safe as general anesthetics.
2. Drop either anesthetic in the mask, giving the patient plenty of air.
3. Have the patient breathe both through the nose and mouth; the latter prevails when the full anesthetic stage is reached.
4. Keep the patient warm while he is on the operating-table; cover him up with an extra blanket before his removal from the operating-room.
5. Do not place the finger on the eyeball in order to determine the extent of the anesthesia; gently touching the eyelashes on the upper lid will determine any reflex movement and make known the extent of the narcosis.
6. Keep strict guard of the patient entrusted to your care, and do not watch the operation.
7. Observe the danger-signal—when the breathing begins to become stertorous or snoring, then suspend the administration of the anesthetic and remove the mask from the face.

---

[1] Alexander Hittin, M. D., *Med. Council*, Oct., 1913.

[2] W. J. Robinson, M. D., *Am. Journ. of Clin. Medicine*, Oct., 1913.

[1] A. S. Tuckler, M. D., *Am. Jour. of Clin. Med.*, Oct., 1913.

695

American Medicine

EDITED BY
H. EDWIN LEWIS, M. D. and CHARLES E. WOODRUFF, M. D.
PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.
Copyrighted by the American Medical Publishing Co., 1913.

Complete Series, Vol. XIX, No. 11.
New Series, Vol. VIII. No. 11.
NOVEMBER, 1913. $1.00 YEARLY in advance.

The possibilities for harm in a national health department must be carefully considered by those who are so strenuously advocating its establishment. AMERICAN MEDICINE has long urged the creation of such an organization, but has never been unmindful of the harm done to the science of medicine by misdirected officialism—indeed it has frequently called attention to instances where the leaders of medicine have not only resisted advances but have organized persecution of innovators. This phenomenon is found in all sciences, in all walks of life and is easily explained. By the ordinary laws of selection, only those types of men have survived who were fittest for the social organism into which they were born as a unit, and who exerted themselves to preserve that organism intact as they found it. Innovators, reformers, revolutionists and rebels disturbed existing conditions or caused disruption to the injury or death of many units and sometimes to the destruction of the social organism itself. Conservatism became part and parcel of our very selves, and the reformer is instinctively hated as one who might do us great harm. It is necessary to oppose him until we are sure the proposed reformation will do eventual good without injuring us or the cause we represent. Hence it is almost universally true that a revolutionary scientific discovery is made by a very young person, unbiased by present theories, who is either ignored or denounced by his teachers or superiors in official position. Medicine especially lends itself to such persecution because human lives are at stake. We can easily see why the profession were so bitter towards Bodington and drove him out of practice when he began treating consumptives by out-door living. The idea was fixed that such patients were exceedingly delicate and must be protected in warm rooms devoid of all draughts. To do the opposite was considered murder. It was experimenting with human souls to give the system a trial. Today we are just as bitter as ever against physicians or surgeons whose new methods we think might kill some one. We even combine in a very unmanly way against him who shows us that our accepted notions are erroneous. The orthodox, dull, mediocre man is the safest, to be sure, for he never runs after false gods, but he always lags behind the advanced workers and might let a man die who could be saved by newly discovered methods.

A national board or department of health must be conservative and orthodox or it will not inspire public confidence. It must not adopt anything new before long study and trial proves it good, for if any harm should result the public will be outraged and call for the dismissal of such fly-away officials so lacking in poise. The

leaders will probably be men of advancing years who are instinctively cautious and perhaps inaccessible to new ideas. They are as liable to restrict progress as the leaders in Jenner's time. If convinced that public policy demands it, they are in duty bound to suppress the work of subordinates even though facts have been described of incalculable value to mankind. The young man who finds that existing ways are wrong may be subjected to the same persecution as was alloted to Bodington, and might be either dismissed or forbidden to speak of his discoveries. The successful working of such a big machine will undoubtedly call for the closest cooperation between all its parts to carry out the policy of the bureau, and this necessity may be made the excuse for eliminating those who would change that policy for the betterment of public health. These are not fanciful conjectures. History is full of such occurrences which are the basis of that popular and professional fear of a "medical trust"—a fear which may prevent the early establishment of the department of health. The friends of the movement must so arrange the details that the opponents will be convinced that all of these evils will be prevented by proper safeguards, for the eventual establishment of the department is conceded.

The danger of professional jealousy is present in all callings as it is very human to envy our betters, but in the medical profession we must confess that the harm done in the past is excessive. If promotion depends upon good works, nothing is more natural than to discredit one who might displace us, and then jealousy might lead to dreadful scandals in the way of the persecution of those who are doing the most to advance public health. A man in authority can easily find assistants, who, for return favors, will conspire to discredit new ideas and ruin the men who fathered them. Public health is too important a matter to be jeopardized by officialism and centralization. Locally administered, it will advance more quickly with full publicity of all discoveries than it will if the research work of a host of governmental employees is liable to be suppressed or discountenanced or deliberately garbled or falsified to save the face of some one higher up.

The advance of sanitation in the future as in the past must depend upon men so situated that they cannot be injured for advancing it. Long tenure of office begets in ordinary man a feeling of infallibility which is generally called the "mania of power." It invariably makes an inferior man feel that his own opinions are vastly more valuable than those of his subordinates. It takes a great man to recognize greatness in his assistants. Tenure of high office should therefore be temporary, but such a constantly shifting personnel cannot be as efficient as a well drilled, experienced staff working in perfect cooperation. We must therefore make haste slowly, and not lightly abandon present methods which have proved their usefulness by wonderful accomplishments in the reduction of infectious diseases, particularly typhoid fever.

The Boric Acid Scandal Will Not Down.—Now comes the charge that a medical organization or some of its responsible officials have been bribed by a food manufacturer who does not use the preservative, and who has seized the opportunity of medical endorsement to get a trade advantage over rivals who do use preservatives. We have frequently stated that some of the

very best men in the medical profession, both here and abroad, have concluded that there is no evidence whatever that the minute quantities of preservatives ingested with foods have the slightest effect upon health one way or another. In spite of this there have been persistent official attempts to commit the government to a policy of repression of the use of all preservatives—which is an impossibility.

This unfortunate and regrettable incident shows that a national health department could be made a cat's paw in an unfair commercial war, such as in the case of the notorious western board, which for a consideration declared certain harmless baking powders unwholesome. At any rate, the controversy will delay action. We are not entirely sorry as we have been inexpressibly shocked to learn that the recent legislative campaign was not honest. Let us go slow and be safe as we will do more good in the end when the department is established.

A distinction between functional and organic high blood pressure has been made by Dr. L. T. Thorne in a recent article in *The Practitioner*. He finds that when there is much difference between the maximum and minimum readings it indicates degeneration of the arterial walls and that the extent of the lesions may be approximately judged by the amount of the difference. The healthy elastic arteries of young people expand under the systolic blood rush, thus preventing a high pressure, so that the difference between the minimum and maximum varies from 30 to 50 m. m. Hg. When the arteries are rigid on the other hand, this regulating arterial expansion is impossible and the pressure mounts much more with each pulsation. In such a case the minimum might not be raised very much while the maximum might be increased out of all proportion if the heart is big and strong enough to overcome the obstruction. When the obstruction to the blood flow is caused by hypertonicity of the arterioles, which are in a condition of more or less spasm from some form of poisoning, the minimum is raised proportionally with the maximum. That is, there is still enough arterial expansion to prevent the heart from causing more than the normal pulsation increase of pressure. Thorne does not use the words diastolic and systolic because the minimum and maximum have no close relationship to the diastole and systole of the heart.

The importance of differential blood pressure readings is quite evident. If we find a case in which both readings are high and the difference between them normal, with no evidence of arteriosclerosis, we are justified in considering it a sign of a functional disturbance, and we can confidently predict a cure as soon as we have found the source of the poison which is stimulating the vasoconstrictors into a veritable spasm. Regulation of diet and correction of other abnormalities might restore to perfect health and assure a long life to one who is otherwise on the road to invalidism and premature death. In the other cases, where the difference between the two readings is much more than 40 m. m., it may reveal a condition of arteriosclerosis not evident in the superficial arteries, but which of itself may do irreparable harm if the manner of living is not regulated. And of course it aids us in finding the remote cause and in preventing further arterial degeneration. Thorne uses a Martin sphygmomanometer and an Oliver tampon at the bend of the

elbow, and assumes that the minimum pressure is recorded when the first faint pulsation bruit is heard, and the maximum when the pressure on the artery obliterates the bruit. There will be differences in the readings according to the way we take them, so that the records of one observer may differ from those of another in the same case, and allowance must be made for this in the clinical reports of cases, but any method of taking the two pressures will do for the purpose of showing the differences and the effects of treatment. His paper by-the-way, seems designed more to call attention to the fact that Nauheim baths have a decided effect in lowering blood pressure and that the generally received belief to the contrary is erroneous. When the heart is embarrassed from the loss of compensation, it is quite essenital to relieve it, and it would be a good plan to find out whether other kinds of baths at home would not be equally efficacious. We might obviate the necessity of a long journey which is out of the reach of most patients anyhow. Balneotherapy seems destined to be of considerable importance but, as we have frequently noted, it must be put on a solid scientific basis of observation and experiment to eliminate the absurd claims of ignorant empiricists who have brought so much deserved discredit on the spas used for robbing visitors who think they are sick.

Too much attention is paid to the kidneys, according to Dr. W. Ophuls, Pathologist to Cooper Medical College, San Francisco, Cal., who has published an account of the cases found among one thousand unselected necropsies. (*Arch. of Int. Med.*, Feb., 1912). He concludes that there is no justification for considering that interstitial nephritis, as a primary condition, is different from arteriosclerotic kidneys but that the genuine contracted kidney is a result of arteriosclerosis in the terminal arterioles. It is closely associated with general arteriosclerosis, but we cannot yet determine the exact relation between the condition of the kidneys, arteriosclerosis, high blood pressure and enlargement of the heart. The cause is a toxic one, though lead is the only poison definitely proved. Certainly the kidney condition is not the cause of high blood pressure to anywhere near the extent we have generally supposed, and the heart condition seems to depend more upon the arteriosclerosis than upon the nephritis, but when hypertrophy does not follow arterial hardening it is generally prevented by malnutrition from some other disease or senility. Parenchymatous nephritis is generally subdivided into a complicated system of classes, but Ophuls groups them all into subacute and chronic glomerulonephritis and subacute and chronic amyloid kidney (large white kidney) which is closely related to the former, etiologically and anatomically. The cause of both is chronic sepsis in the majority of cases. The secondary contracted kidneys, constituting nearly a third of all seriously contracted kidneys, are sequelae of a combination of amyloid kidney and glomerulonephritis, and in the broadest sense are remotely due to chronic sepsis. The interstitial lesions develop early and are probably not secondary to epithelial lesions but simultaneous with them. From this remarkable study, together with the more recent developments of the subject in Europe, we are compelled to take an entirely new view of the significance of Bright's disease. It merely means that the kidneys are being injured in the process of screening out poisons of a septic

or alimentary origin. As we have frequently remarked, the modern increase of deaths by nephritis is probably due to the manner in which modern sanitation saves us from early death by infections, to die later of the slower and more subtle poisons we manufacture from faulty diet or neglected minor infections.

The toxemic origin of nephritis is a very old idea, but recently it has been so emphasized as to create the impression that the disease is never a primary affection. Best of all is the frequent assertion that it is never progressive if the poisoning is stopped, but that its progress depends solely upon continuation of the original cause. We are accustomed to the idea that acute nephritis is always a complication of some acute poisoning as in diphtheria and scarlet fever, but have strangely overlooked the cases of chronic poisoning. Indeed the vast majority of physicians consider the chronic Bright's diseases as primary affections or at least concomitants of a mystical general process involving the circulatory apparatus. Quite a number of students have convinced themselves that certain poisons are specifically at work causing cloudy swelling of the kidney cells whose duty it is to eliminate the harmful materials from the blood current, but the origin of the toxines has only been guessed at as a rule. It is exceedingly easy to say that there is some fault with digestion, assimilation or oxidation of waste materials and that the by-products are poisons to the kidney cells screening them out, but as a matter of fact we have only made a beginning in the chemistry of proteids and know nothing of their differences except that one animal will starve to death on certain kinds which are perfect nourishment to other species. We are justified in assuming that there are individual differences in any one species and that there is a lot of truth in the old saying that what is one man's meat is another man's poison. The non-nitrogenous foods have rarely been under suspicion except in glycosuria which is frequently accompanied by nephritis due to the poisonous action of sugar in too strong a solution. It is not at all remarkable then that there is such a general impression that protein poisons are at the bottom of many of the diseases of advancing age.

The treatment of nephritis and its allied conditions has become highly successful. L. F. Bishop of New York is attacking the problem successfully from one end by searching for and excluding the offending dietary proteids, while Wm. Arbuthnot Lane of London is accomplishing remarkable results by curing the intestinal stasis which permits an undue absorption of the products of defective digestion.

Dr. Martin H. Fisher of Cincinnati has repeatedly called attention to his remarkable experiments proving that, no matter what the original poison, the final cause of nephritis is invariably "the abnormal production or accumulation of acid in the kidney." Edema is not the result of nephritis, he claims, but is due to the same cause acting on other body cells and there may be Bright's disease of the retina without the kidney cells being noticeably affected. (*Jour. Amer. Med. Ass'n.*, May 31, 1913).

Excellent results follow the neutralization of the acids—patients even with anuria recovering. The European investigators are looking towards prevention and do not seem to be aware of Fisher's discovery of ways of neutralizing the damage when we cannot wait to remove the cause. There

can be no cure in the sense of restoring lost parts, but the progress can be checked and the patient restored to health if he has enough kidney left. It is really amazing how little we can get along with if we live right, and the prospects are very bright for lessening the appalling number of deaths which are finally due to the destruction of the kidneys.

Intestinal stasis has been occupying the attention of the British medical profession to a very great extent recently and they have been discussing the matter in a series of meetings at the Royal Society of Medicine in London. There have been some rather warm differences of opinion as to details but there has been no dissent whatever from the main proposition that intestinal autointoxication is responsible for far more evils than Metschnikoff imagined. There are still very wide differences as to whether the colon has outlived its usefulness, some contending that it was once essential as the place for a supplementary bacterial digestion of rough and coarse foods which the stomach and small intestines could not dispose of, but that the more refined cooked foods of civilization do not need a colonic digestion. There are others who go a step further, believing with Metschnikoff that the colon is not only useless but is now really injurious because it has been degraded from the position of a digestive machine into a mere receptacle or temporary cess-pool for the by-products of digestion. They assert that in course of time, by the survival of the fittest or those with the smallest colons, that organ will dwindle away as the appendix has from its original size as a digestive organ, but the change from savage life has been too recent for much progress. This reasoning is strongly combatted by a few physiologists who are inclined to the view that the colon still performs some functions, mostly absorptive perhaps, while the evolutionists are proving that the disappearance of organs which become harmful by a change of environment is an exceedingly rapid process. Fishes which take up residence in caves may lose their eyes by such an involution and we know that the age of the caves is measured by a very moderate number of milleniums. So we too should have very small colons now, if they are as harmful as a few extremists assert. Still, Metschnikoff is a very big man who does not form conclusions without a solid foundation of facts and we can harmonize the objections of the evolutionists by the assumption that the colon has been useless only a few hundred years—not many thousands. Be all this as it may, the British profession seems to be unanimously of the opinion that a bad colon is far worse than no colon. That is, when incurably diseased it does so much irremediable harm that its removable is justifiable.

The results of constipation are so serious that it certainly behooves us all to study it in far more detail, particularly in the middle aged. Lane has proved by his surgical work that there is no end to the conditions which are caused or made worse by the toxemia of stasis. Tuberculosis, Still's disease and rheumatoid arthritis have miraculously disappeared when the colon has been removed or short-circuited, and so have a host of other conditions we have hitherto considered incurable. Men given up as in the last stages of nephritis are now working sixteen hours a day, since relieved of the cess-pool which was causing the nephritis.

Lane says that the gynecologist would not have been evolved if women were not cursed by such a bad drainage scheme. We have long known the serious results of constipation on digestion, circulation, appearance of skin, muscular degeneration, nerve exhaustions, heart changes described by James MacKenzie, and numerous other things which can only be appreciated by reading Lane's remarkable articles. Stasis is responsible for some cases of cancerous nodules in the breast, exophthalmic goitre and thyroid changes, and the toxemic condition permits bacteria to settle almost anywhere and cause chronic suppuration. Constipation or stasis is not the minor affection we once thought, but is really a cause of slow death, in spite of the fact that some women are apparently healthy though their bowels move but once or twice a week.

The cause of mucous colitis is a most important point to settle now that we have learned that this intractable disease may be the cause of fatal affections of the kidneys and circulatory system from the toxemia. The general opinion seems to be that some cases are of purely neurotic origin, but Mr. Peter Daniel, the well-known London surgeon (*"The Proctologist,"* March, 1912), states most positively that the nervous symptoms are due to damage done by the disease, and that the primary cause is often, if not always, an infection derived from some other part of the body. Many cases are labeled neurasthenia, psychasthenia, hysteria or what not, and pass from doctor to doctor in a vain search for relief from symptoms which are not infrequently considered imaginary or "functional" at the most. These invalids are surely an unhappy, miserable lot, and as there is undoubtedly a super-added neurasthenia the real cause of their trouble is overlooked or not even suspected. Daniel is inclined to think that the necessary antecedent of these cases, as well as of such well defined entities as gastric ulcer appendicitis, cholelithiasis, pyosalpingitis, is an infected mucosa of the organ involved; and of course the infection is remotely derived from some long standing small focus of suppuration elsewhere, generally in the mouth or upper air passages. That is, there is no such disease as idiopathic or primary colitis. We have long been in the habit of designating cases as secondary when we knew the evident cause—such as an antecedent amebic or bacillary dysentery—but now the question arises as to whether we must look on all cases as secondary and diligently search for the cause. It is quite evident that many people who are doomed to pass a miserable short neurasthenic existence could be restored to perfect health and given long life if we could find the original cause and remedy the damage to the colon. Instead of being a disease of minor importance, it is so serious as to deserve great attention, particularly as it may be masked by constipation.

Diseases due to chronic infections of the orifices of the body have also been described by Mr. Peter Daniel in a remarkable article (*British Med. Jour.*, Jan. 15, 1910), which now assumes enormous importance on account of the more recent revelations as to the serious after-effects of intestinal autointoxications following infections derived from the mouth and adjacent parts. Lane asserts that these local infections are generally secondary to toxemia from intestinal stasis, and that if the toxemia is cured the local disease—gingivitis for instance—

disappears by a restoration of our natural resistance to all our bacterial messmates. All the orifices swarm harmlessly with bacteria until we lose resistance from some kind of poisoning. Daniel takes the opposite ground that the local affection is primary, and that a cure of the local disease is followed by the disappearance of the general condition. Perhaps both are right—at any rate each is accomplishing phenomenal results by attacking one cause. Our interest in Daniel's work is due to the fact that Americans have for many years been calling attention to the disasters which follow long continued toxemia from such conditions as suppuration in the gums, antrum, sinuses, vagina, urethra, etc., and it has been a routine to examine for a local suppuration somewhere to clear up obscure cases. Daniel shows that the British profession has almost completely ignored these causes of chronic diseases and that students are not even made aware of these conditions which do the "spade work" for a later planting of tubercle or typhoid bacilli. Not only is the toxemia to blame for all kinds of after-effects—from arthritis to insanity—but the organisms themselves migrate and may lodge almost anywhere, and other invaders may appear in the weakened body. Darling found that 92 per cent. of persons dying of pneumonia had an older nasal sinusitis; Fish found empyema of the antrum of Highmore in the majority of those dying of measles and scarlet fever; and Weichselbaum found empyema of one or more of the sinuses in 12 influenza autopsies.

The results of sepsis may be goitre, neuritis, arthritis, heart disease, general ill health and hysteria, crises of tabes, Charcot's joints, perhaps eclampsia, nephritis, exophthalmic goitre, Henoch's disease and certain glandular affections. Even in cancer it is a factor and this long list does not include all the things Daniel mentions. There will be great skepticism as to the wisdom of making such sweeping generalizations, but it will be criminal not to act upon the suggestion and cure up all local chronic infections even if we must extract all the teeth in cases of Rigg's disease which do not respond to treatment. If we take care of these pennies, the pounds of ill health will take care of themselves—that is, the mild and often overlooked trivial complaints are really destroying lives of men who do not know that anything is wrong, and the cure of some minor pus focus which is industriously poisoning the whole system, may cure a baffling general condition in some patient whom we are apt to condemn to life-long suffering as an incurable neurasthenic. Nothing can be more important, then, than to search for chronic pus foci and cure them.

Insanitary American dental bridges are receiving some pretty harsh criticism in England and have been under the ban for a year or two because of the revelations as to the harm done by oral sepsis. It is claimed that unless the tongue can get under the bridge freely to dislodge particles of food, the apparatus becomes a foul culture tube of about every kind of organism which can kill us. They set up local disturbances of a septic nature and give rise to gastro-intestinal sepsis with all the after effects of autointoxication. Physicians are now sending such cases to the dentist to have the bridges removed, for in no other way can a cure be obtained. These are all serious charges, and we would beg our dental confreres to take up the subject with

a view of preventing such insanitary work in the future. J. F. Colyer (*Pro. Roy. Sc. of Med.*, Mar. 10, 1913) goes to the extreme of advising the extraction of all carious teeth in children, though we presume he excepts small cavities which can be properly filled. He says that no doubt there will be some contraction of the jaws, and the permanent teeth come in crowded, but he declares that this can be corrected later, and even if not corrected it is a very minor damage compared to the dreadful systemic results of constant toxemia from foul teeth. American dentists are inclined to protest agains the extraction of deciduous teeth, but Colyer says that he does not hesitate to take all out if all are offenders, for they may cause permanent destruction of health or even death from supplementary infections due to lowered resistance.

The decayed teeth of school children are far more dangerous than we have formerly believed. Those pioneers who have been urging dental work in schools are not officious busy-bodies trying to create jobs but are public benefactors deserving of commendation. Parents, as a rule, are horribly negligent of their children's teeth, even intelligent ones are ignorant of oral hygiene. It would be a wise move then for the family doctor to look into the mouths of his little patients as a routine part of his examinations. He might find the cause of many an obscure case. It is a well known fact that a group of children whose teeth are kept in good condition, are far healthier, brighter, and better developed than an identical group in identical conditions but who are poisoned by discharges from carious teeth and diseased gums. It is thus proved that from infancy to old age we are in constant danger of developing fatal diseases as a result of toxemia from a very insignificant pus focus in the mouth. This is an enormous hygienic field for cultivation, and the family physician will be miraculously successful if he is on the constant lookout for these minor affections undermining health. If only half is true as to the statements relative to the development of tuberculosis in persons suffering from chronic poisoning, it would be well for our antituberculosis societies to include oral hygiene as a part of their crusade.

Therapy of the colon is destined to loom up large in the future and we must again take up the discarded intestinal antiseptics with the hope of finding some which are as truly specific for bacteria as emetine has proved to be for amebae. Vaccines may solve the problem if we can find the offending bacterium, but unfortunately the original culprit is not infrequently driven out by later invaders which are not able to start disease themselves but, like a mob of riotous looters, become active when defense is weak. Metschnikoff's Bulgarian lactic acid bacillus has accomplished phenomenal results, but is disappointing in certain cases. Where there is sagging of the intestines and delay in flow of their contents, Lane has succeeded marvelously by supporting the abdomen with a truss and administering a half ounce of Russian liquid paraffin a half hour before meals. The oil acts mechanically as a lubricant, as it cannot be saponified and undergoes no chemical change. It passes through with the feces. The American mineral oils do not succeed so well as they contain sulphur—particularly the western product. Hence the fluid paraffins (white oil, petroleum, etc.) made

from them are irritating to the intestines and are said to have caused nephritis. They also contain a high percentage of acid and fluorescent hydrocarbons of the pentane, hexane series, all of which are also irritating. For these reasons the Russian oil must be given as it is free of sulphur and the undesirable hydrocarbons. Finally, if the colon is incurable, we must decide whether to short-circuit it or remove it—and this must be decided by the surgeon. All these matters should really be made known to laymen to popularize the idea that small illnesses and local suppurations usually considered trivial, may in fact start a chain of diseases which bring death several decades too soon. The dentist alone has become an enormously important factor in preventing chronic invalidism and in prolonging life.

Journalistic responsibility for honest advertisements seems to be an accepted part of the ethics of the profession. The time has long gone by when the business office of any periodical would accept an evidently fraudulent advertisement and then calmly shift responsiblity to the buyer telling him to look out for himself. The question has been carefully studied in the Columbia School of Journalism, and, according to *The N. Y. Times*:—

"In the course of the discussion, as was inevitable, the old idea of *"caveat emptor"* was brought forward in a way to show that some of the students had brought with them into the school vague notions as to the purchaser's duty to look out for himself—notions which, though true enough when properly understood, have been made an excuse for a vast amount of shabby dealing and hardly less of fraud and theft. Before the debate ended, however, all the members of the class had settled on the commendable view that a newspaper is bound to take reasonable care, with every advertisement printed, to see that the representations in it are made in good faith, and that it comes from those whose purpose to tell the truth can fairly be assumed.

That all "doubtful" advertisements should be excluded was also decided. Noble counsel that, but before accepting it as a rule for practical application one would like to know a little more as to how the boys defined the word "doubtful." Is no allowance whatever to be made for the seller's enthusiasm, and is publicity to be denied to him on the possibility that a rigid investigation of his claims in behalf of his wares, whatever they may be, might disclose that they are not quite as much better than those of his competitors as he says? To do that would be "restriction of trade," indeed, and might get the meticulous doubter into trouble with the Interstate Commerce Commission or even the Supreme Court.

"Reasonable care" and "due diligence" are all that can be expected in the present state of the world—and both, by the way, are as much to be expected from the buyer as from the journalist."

Medical advertisements in medical journals require even greater care and discretion because of the radical differences of opinion among therapists. The main point is not to weed out errors and mistakes—a matter of a life time even in revising a dispensatory—but to exclude deliberate fraud and falsehood. What one physician considers highly valuable, another may denounce as worthless and too often it is because he gave it in wrong ways and amounts. The early use of tuberculin was almost universally fatal, and if medical journals had excluded all mention of it from their columns, the world would have been deprived of the wonderful good it is now accomplishing. A small group of men cannot possibly know enough to express safe opinions on all the drugs used throughout the civilized world. The opposition to the verdicts of self-constituted judges and councils is due to the fact that they now and then denounce what others

have found to be not only useful but valuable.

Neither American Medicine nor any other journal should care to refuse publicity to what it considers error but what many of our best men have found of high value. Our efforts are consequently directed to detect deliberate attempts to deceive our readers and protect them to the best of our ability against those whom we find to be fraudulent and dishonest. We realize that we are not infallible and in spite of all possible vigilance will make mistakes from time to time. We will be grateful to any of our readers, therefore, who will cooperate with us by pointing out any advertisements which may slip in because the fraud is hidden, or we have been deceived.

As for deciding what to use and what to avoid in any given case, that is a matter which the colleges try to teach, and the medical journals are the mediums for the discussion of views and the publication of advances. The family physician must have brains and use them, for if he takes his opinions second hand from those who may not have had his opportunities to observe cases locally, he is not doing the right thing by his patients.

The germicidal power of arsenic and mercury are far from being understood. The general impression has always been that they have a selective action on spirochetae which they poison to death though the solution is too weak to affect the body cells of the host. Like quinine in the case of the plasmodium, they are considered specific poisons, though all specifics are poisonous to us if taken in too great a quantity. There is evidently another factor according to Dr. A. G. Brown of Richmond, Va., who discussed the matter in the *Virginia Medical Semi-Monthly* (Oct. 25, 1912). He calls attention to the fact that the Wassermann reaction is negative after mercury is administered and while spirochetae are still found in the unhealed lesions. He is inclined to believe that this is due to the destruction by mercury of the bodies causing the Wassermann phenomenon, the mercury being a very feeble spirillicide, and requiring several years to eliminate the parasites. Arsenic on the other hand in the large doses possible with salvarsan is much more of a spirillicide as the spirochetae promptly disappear, but as the Wassermann reaction continues positive the arsenic evidently does not affect the syphilitic poisons. Mercury, then, prevents symptoms from appearing though the case may be far from cured, while arsenic causes symptoms to fade from the destruction of the spirilla, although we now know that it too does not cure. This is a very interesting hypothesis, and it is mentioned to emphasize the fact that we are far from understanding why specifics are specifics. There is still an empirical basis even for the exact results of laboratory experiments. Brown quotes Levy-Bing (*Oxford System of Syphilis*) as suggesting that mercury strengthens the system in some way and enables it to dispose of the spirilla. Many cases spontaneously recover in spite of this aid, and indeed there may be a modicum of reason in the administration of "alteratives" by the old physicians. They must have seen good results now and then, if these new speculations are correct. Perhaps we may see a return to some discarded drugs as adjuvants in the after-treatment by mercury when arsenic is the primary reliance. We have seen just as remarkable returns of other drugs to favor and should keep an open mind in this matter. The new therapy is still a matter for discussion, and has thus made it necessary to find out why alteratives are alteratives. It seems to be a chemical problem, and is one more link binding the chemists and therapists together for teamwork.

CHARLES MCBURNEY, M. D.,
Died Nov. 7, 1913.

MEN AND THINGS.

The Staten Island Sea-View Hospital for Tuberculosis has been opened for the reception of patients and already is filling up. It will accommodate 1,100 of the 4,000 consumptives of New York City who are in urgent need of hospital care, and will probably have a far greater public benefit in popularizing knowledge of methods of cure which will reach the estimated 30,000 New Yorkers who are in the incipient stage. That is the problem of the consumptive just beginning to be solved. Whether the people can afford to solve it is a question now giving serious concern to thoughtful philanthropists. This hospital cost thirty-five hundred dollars per bed, and to reach all the sufferers, a hundred million dollar plant would be necessary, not to mention cost of maintenance, which cannot be much less than fifteen million dollars a year. This is appalling, of course, but should not discourage us from doing what we can. Luckily the number of consumptives has been progressively diminishing for nearly forty years, and the decline seems destined to continue. The death rate from tuberculosis of the lungs in New York City has declined from 341 per 100,000 in 1890 to 190 in 1912, and may soon be as low as London's 135 or Hamburg's 120.

The plan of the Sea-View Hospital seems to be the last word in housing the tuberculous, but there is a well grounded fear that it has carried one matter to excess. It was designed years ago when everyone repeated parrot-like, the alleged necessity for an excessive amount of light. The best phthisiographers now rarely mention it, because they have found that cures are good and permanent in places noted for lack of light. Moreover in all places, the cases improve most in the dark season, while most if not all go backward in the light season. The chief exponent of light baths, Rollier of Leysin, Switzerland, cannot use them in summer and finds them injurious to blonds. Even the brunets do not improve unless they take on a heavy coat of tan which keeps out the light. Rollier's critics are bitter in their denunciation of his methods, and claim better results without exposing the naked bodies to the sun. Rollier carefully shades the head to prevent pain from the glare, while at Sea-View, the face is the only part which the light reaches. We are much afraid that the excessive number of glass windows and partitions without shade will only give a painful glare and that the results from March to September will not be good. With this exception, the details leave nothing to be desired in the way of prevention of spread of infection. Still one cannot help asking why it is necessary to go to such extremes, if it is true that no one is ever infected in adult life. The popular phthisiophobia of the days when the plans were laid is now a thing of the past.

The sudden death of Dr. Charles McBurney has directed public attention to the fact that though he was one of the world's great surgeons, his fame seems to have centered on the one fact that he helped to make the diagnosis of appendicitis easier. Long after the world has forgotten his great operative achievements, he will be remembered through "McBurney's point" which every physician now instinctively looks for in cases of abdominal pain. He deserves his fame for he was an exceptional man. Untold thousands of others had found pain and tenderness located at that spot, but no one else ever dreamed of making any special deduction from it. Few of us are able to see what we look at—a fact noted by philosophers for thousands of years. These few attain renown in proportion to the good to mankind resulting from their discoveries. Dr. McBurney retired from a highly successful professional life a few years ago, and it was hoped that he would enjoy his honors and fortune in a long happy leisure. But life seems prolonged in those who stay in the harness.

Tuberculosis following acute or chronic enteritis has been discussed by Drs. M. Loeper and Ch. Esmonet in *La Tribune Medicale* of Mar., 1912. This is evidently an old observation in France, for they mention the theory that the enteritis merely prepares a port of entry for the tubercle bacillus, but as we are constantly taking in

living bacilli, these few extra ones should not do any appreciable harm. There must be another reason and the authors think it is the reduction of resistance from the interference with digestion and assimilation during the enteritis. Acting upon this idea they have apparently prevented tuberculosis after such cases by a liberal diet of fats and proteins. All this is exceedingly interesting and important from another point of view. The recent discovery that typhoid fever is a frequent precursor of tuberculosis raises the suspicion that these cases of acute and chronic enteritis were really typhoid fever. If they were typhoid, then we have one more reason for dreading that infection, and also additional proof of the safety and necessity of liberal feeding in that wasting disease. Under the classical milk diet—so contrary to the proud boast "he fed fevers"—the patient comes out of the fever pale, thin, weak and thoroughly exhausted mentally, nervously and physically. No wonder that in so many of them a latent tubercular focus lights up and destroys them. This alone is sufficient to account for the facts not to mention the undoubted destruction of tubercular resistance by the typhoid toxins. If the cases of enteritis were not typhoid but due to some other bacillus, the process is the same. It is quite essential then in every case of enteritis to think of the possibility of a latent tuberculosis subsequently developing, and to take dietary and other measures to keep up the patient's resistance. It would be well to paste in our hats two big letters "F. F." and when anyone asks what it means explain that it means we must "Feed Fevers."

A decrease of crime in England is now reported and it is a welcome relief from the monotonous and dreary wailings of pessimists who have been telling us that mankind was getting worse and worse and the world going to the demnition bow-wows generally. Few have believed it of course, and they have been deceived by the greater frequency with which crime is detected. There are little outbreaks here and there, as with the New York gunmen and the Paris automobile bandits, but these cases excite attention by their infrequency, for they were common occurrences in the slums of all cities a century ago. The medical interest in the decrease of crime, is due to the fact that it is an indication of increasing public health. We can now accept it as proved that the great majority of criminals are of such frail physique and poor nervous system that they cannot make a living except in a parasitic way. Many—perhaps most of them—can be cured if caught young enough, and even if they are instances of quite a high grade of arrest of mental development, as most young criminals are, they can be taught how to make an honest living. We are now told that at least two per cent. of the children in the graded schools are mental defectives who cannot profit by the course of instruction. They are the ones who furnish the criminals for the reformatories to cure. It is claimed that if these defectives are trained in special schools by special teachers they will be cured or at least kept out of prison. We wish we could believe it. Although there is no question of the necessity of special instruction, the main point is wholesome and ample food, as there is little doubt that the main reason why they are largely developed in the slums is the poor quantity and quality of their nourishment. They are really starved and cannot develop properly until properly fed. This is perhaps the main reason for the excellent results of institutional treatment where the food is not stinted. "He fed fevers" is a glorious epitaph for a doctor, but let it be known that good results of reformatories may also be largely due to the fact that the inmates are well fed. To go back to the decrease of crime then, it is a legitimate conclusion that the sanitary crusade of the last fifty years in England is now bearing fruit in the lessened production of weaklings who exist as parasites. Not only are people better fed, but they largely escape other harmful factors which prevented proper development. For every dollar spent on sanitation we may eventually save one now spent for criminals.

The suffragette mania for violence has reached a point where it has stirred the whole British Empire—as the women intended. Unfortunately this stirring up has

had an opposite effect to that it was supposed it would have. Women have been said to have married persistent suitors to get rid of them, and it was confidently asserted that male voters would take in the women to get rid of them, or they hoped to win by violence what they often do by tears. On the contrary a wave of disgust has gone over the nation and the "cause" has been retarded a generation if not permanently. It has turned many advocates into opponents, because they think that those who persistently break laws are not fit to make them. The militant women themselves do not realize that if breaking of laws is to be stopped by changing them, there is an end of all law, and that an equal suffrage law passed under such compulsion will itself be nullified by those opposed to it. The militants were at first treated with good natured British tolerance and fair play, with the usual amount of ridicule invariably directed towards reforms and reformers, good or bad; but when private property was destroyed maliciously, the owners protested —particularly when the owners happened to be in favor of the movement for equal suffrage. Public opinion veered around and violence was met by violence, as it always is when old laws show themselves unable to deal with new conditions of disorder jeopardizing life and property. It became personally dangerous to work openly and the women now commit their crimes secretly—a crusade of bomb and torch. Indignation is so strong and widespread that the nation may be trusted to devise a way of ending the nuisance without giving the slightest ground for the criminals to assume the role of martyr, which, by-the-way, is another fond dream of their feminine brains. The medical interest in the problems centers in the mental state which can lead to such abnormal acts, and whether or not the mind is normal. Of course every reformer with a new idea which is opposed to the ideas of the vast majority of people, has been called insane—and in fact, some reformers are crazy. In asylums one finds a multitude of plans for reforming about everything, but even outside we find that a brain so abnormal as to think differently than all others, is apt to think crooked at times and harbor ideas which differ from delusions by so slight a degree that it is difficult to define them. This is true of some of the world's ablest benefactors, and their very mental strength makes is difficult to convince them of their minor errors. They refuse to be convinced even when the evidence is conclusive, and yet insanity cannot be charged. Militant suffragettes go a step further, for they seem now possessed of "fixed ideas" which they will probably hold as long as they live, yet it would be as rash to accuse them of insanity as it would be to call every professional criminal crazy because he thinks the world owes him a living. There is no question that the women are very abnormal or they would stay home like womenly women—indeed their pictures often show evidence of "masculinity" which is as much an evidence of serious degeneration as "femininity" in males who also not uncommonly figure in police courts for other crimes due to their defective and distorted development, physical and mental. But what is the character of this abnormal militant psychology if it is not insanity? No one seems to know at present and therefore no one seems to know how to cure them of their false idea that law is improved by contempt for it—a weapon which will destroy anyone who uses it. No action is possible until psychologists and alienists clear up the matter a bit. Unfortunately such pronouncements as they may make are foredoomed to discredit, because in the minds of some of our ablest people female suffrage is considered an extremely sane and important, even vital, reformation. They should join hands in suppressing the violent ones, but it begins to look as though the militants are incurable and will continue in their ways as long as they are allowed their liberty. It is brutal to say the sooner they die the better for the cause, yet it may be a brutal fact. If one deliberately starves to death in prison and the newspapers decline to make a martyr of her—the whole crusade of violence will collapse as a matter of course. But perhaps the plan to release them for recuperation and then rearrest them to serve more of the sentence and repeat this course until the whole time is served, may accomplish the same end and save their miserable lives.

The increasing responsibilities of the ship's doctor must soon compel the trans-

portation companies to make it worth while for young men to take up the calling as a life work. So many invalids travel to Europe that our liners could almost be considered sanitariums needing a high grade of professional supervision, and the special conditions of the service require more or less specialization which unfits one for practice on shore. The position has generally been urged upon recent graduates in need of money, leisure to study and such experience as they could obtain. There is now a positive demand for a high grade of doctor, and we may soon hear of physicians recommending certain lines or boats for their patients because professional care on them will be of the best. A large number of ship's doctors are already of a high grade, but the compensation is so low that the best are under constant temptation to leave as soon as a better chance comes their way. The companies which pay their physicians well enough to retain these excellent men, will surely attract travelers and such lines will be unwilling to pool their earnings with those who make the least profits. Altogether the outlook for this special kind of practice is very bright, and the position is one of increasing dignity too as the occupants are making it dignified. We should soon be assured that every invalid we send abroad will receive the best possible care en route, no matter what boat he goes on. We may also soon expect important contributions to medicine in the way of studies of the effects of sea travel on certain ailments. As far as we know, these physicians have contributed comparatively nothing toward the advancement of their science, though their opportunities are numerous and leisure ample. Let us hear from them at once.

Medical endowments and whole time professors are becoming actualities, for which we should thank Heaven and the millionaires. Recent donations to Johns Hopkins, we understand, have been made and accepted with a view of compensating the professors of surgery, medicine and pediatrics so that they will not be compelled to resort to private practice to make a living. They are paid to devote their main energies to the students and hospital patients. They are to have a right to see outside cases, but as they are paid for whole time, any outside fees are the property of the hospital. In all other businesses the employer takes the money earned by the employees and why not in the hospital business? Surely this is the beginning of the long predicted change which is eventually to place most if not all practitioners on a salaried basis as in the national medical services. The state already employs some, the county here and there some more, and the city quite a number, but they are largely psychiatrists, sanitarians, executive officers of hospitals and physicians to prisons or other institutions for the custody of incompetents. It will be only a short step to extend the salaried list to those who now give free medical and surgical service. The money cost to the public will be less than at present, for the workers now make up for it by unduly large fees to those who can afford it. The increased taxation to cover salaries would be less. The advantage to the practitioner is to be freed of the nerve-wearing struggle for existence, with its inevitable professional jealousies, near-quackery, and the other skeletons in our closet which we do not like to expose to lay inspection. Of course there will be no chance to make a big fortune, but few of us do that anyhow. The loss is more than compensated by the pension which comes with old age or disablement. The world has no inkling of poverty and distress of many an old physician who has spent most of his energies in charity and who is too proud to ask for help now that his work power is gone. Let us repeat what we have so often said before, medicine is a way of making a living and like every lawful business it must be mutually beneficial to both sides. If we take the view that it is solely for public benefit, we must acept the suffering inevitable in the old age or disablement of those who do not receive a proper wage in their prime. It is now time to pension old doctors and we would suggest to the trustees of hospitals and dispensaries that this is the right of those who have so nobly worked for them without pay. The time is not so far off when we will be compelled to refuse to do such unpaid service—self-preservation demands a change.

ORIGINAL ARTICLES.

INTESTINAL PUTREFACTION, ITS TREATMENT AND REPORT OF NINETY-ONE CASES.

BY

J. WALLACE BEVERIDGE, M. D.,

New York.

In recent years a great deal more attention has been directed by the internists towards intestinal digestion and the concomitant results from putrefaction and reabsorption of toxic substances which require our most skilful efforts to correct than ever before.

In the infant at birth the intestinal tract is filled with meconium, and if baby is nursed by the mother during the required period the many evil phenomena observed in bottle-fed babies are practically lacking; they are not affected by green stools, or with colitis, and many of the grave conditions that ofttimes cause premature death of the little one do not appear.

Nature seems to provide a special combination in mother's milk, which is readily digested, while the best efforts of our pediatricians in striving towards the modification or upbuilding of cow's milk, to take the place of mother's, has, at best, been unsatisfactory.

In the intestine of the infant living on mother's milk the hosts of evil intestinal flora do not seem to thrive, while in the infants living on an artificial media the intestinal tract is always crowded with many noxious intestinal bacteria and excess of gas.

The normal functioning of the liver is ofttimes impeded by the artificial food, then the secretion of bile is either lessened or of an inferior quality, which is one of the potent factors in maintaining an intestinal asepsis; while with the infant nursed by its mother the normal functioning of the liver is maintained, and the bile is capable of performing its cleansing action.

As the infant grows, should any intestinal abnormalities form, which would prevent active peristalsis, or permit a condition of chronic stasis, intestinal putrefaction will necessarily follow. This has been pointed out by Dr. A. Jacobi, Dr. Joseph Winters and others.

The great advance made in diagnosis of the alimentary tract by the radiograph will show where any mechanical defect is present, and it is just as valuable in the infant or small child as it is in the adult. During the early youth of the child, if improper food is permitted, consisting of an unbalanced diet such as an excess of carbohydrates, or too great a quantity of protein, to the exclusion of other foods, the intestinal digestion is immediately taxed, and only part may be assimilated while the rest remains as waste.

When children are permitted to exercise violently, and allowed to become physically tired the quantity and quality of food does not seem to make such a great difference, as the demand for new cell nutrition is so great that during the metabolism of digestion very little, if any, delay takes place in the intestinal tract, and the putrefying processes do not manifest themselves; but it is in the children that are most carefully guarded and only permitted to do certain well-regulated daily exercise that the food consumed makes a decided difference. These children are not constantly endeavoring to supply the cell broken down with new fuel, and if an unbalanced diet is given

intestinal putrefaction will always be the result.

In the adult, a similar law of food consumption naturally follows. All the auto-intoxications, intestinal toxemias, and their many systemic symptoms, might be stated to come from intestinal putrefaction.

The stomach, perhaps, plays the most important part in food digestion.

Hyperacidity is one of the common causes of gastritis—too much smoking, too much alcohol, too much coffee, will all give hyperacidity. Any food that is capable of stimulating to increased activity the epithelial cells of the gastric mucosa will produce hyperacidity. Fruits if green when eaten contain acid that will cause hyperacidity. Other factors in hyperacidity might be placed under headings of disposition, wherein the individual may be of an excitable and irritable nature—*Overwork,* wherein the individual may be under a strain during a long number of hours, and eat at irregular moments; errors in diet, such as habitual over-feeding, especially excess in proteid food and drinking great quantities of spirituous liquor; imperfect mastication with the bolting of food, especially of raw, coarse, insufficiently cooked food—the stomach is given the task of dividing the food before it is passed into the intestine for final digestion. Thus, in every instance, the stomach must first thoroughly complete its part of digestion before the food enters into the intestine for its final stage, otherwise, the intestine is called upon to overcome the defective gastric digestion, as indicated by hyperacidity, or hypoacidity, or any other abnormal condition, and, if unable to do so, we have the beginning of intestinal putrefaction.

The liver is recognized as the principal organ in removing or eliminating the toxines from the body circulation.

Some authorities claim, and I am inclined to believe with them, that the liver is capable of producing hormones. In diseases of the liver, such as cirrhosis or atropic conditions, we have an interference not only with the production of bile, but with its normal functioning. If the normal production and quality of bile is in any way impeded the peristalsis of the intestine is lessened, and the hosts of intestinal flora become abundant, at once showing the way to intestinal putrefaction. When the liver is not functioning normally the quantity of urea manufactured is much less, and the ammonia is greatly increased—this is always a serious condition, as it is well known that when the protein is broken down ammonia is liberated, and must be changed, otherwise toxic symptoms manifest themselves.

I have shown in another paper, and Baylis and Starling have positively proven that acid digestion as it passes through the duodenum is the medium by which the active pancreatic secretions are stimulated during digestion, and the product so formed which is capable of stimulating the pancreas is known as secretin, manufactured in the epithelial cells lining the duodenum. When the pancreas is unable to function normally, and the enzymes are not produced, digestion is again interfered with, portions of the unchanged protein pass into the large intestine, ever-ready for putrefaction.

The serious attention which within recent years has been given to the action of the intestinal bacteria, and the necessity for their presence, to complete digestion is now positively recognized.

Some of the investigators claim that in the normal, healthy intestine bacteria should be absent, but this is not so, and has been

proven otherwise. If chickens are hatched from eggs with sterile shells, and brought up on sterile corn, they will not thrive the same as the control chickens that are permitted to follow the natural course of feeding. The guinea-pigs that are delivered by Cesarean section, and fed upon sterile milk do not thrive as guinea-pigs in the normal way. Although it was shown several years ago with the polar bear, the pelican, the reindeer, and several other Arctic animals that they had no bacteria in their intestinal tract, but whether the investigators who reported these findings could really be depended on is a question.

So we come to believe that not only the chemical action in digestion is vital, but the bacterial action upon the protein and sugars is most essential for normal digestion.

There have been many kinds of different bacteria isolated in the intestinal tract of man, but the general biological formation is on the bacilli coli communis type. There may be paratyphoid organisms, typhoid organisms, streptococcic and staphylococcic organisms present without doing any apparent harm. The function of the bacteria seems to be to attack the large albumin molecule and break it down into many different parts; the sugars are attacked and changed, etc., glucose into levulose, etc., the proteids into indol, skatol, etc. When too much proteid food is consumed an excess of indol is created, and we have it appear in the urine as indican. When too great a quantity of carbohydrates is taken the sugars are not readily changed, and the glycogenic function of the liver is overtaxed with traces of sugar appearing in the urine—the acids and amino acids which form as the result of proteid digestion, such as xanthin, hypoxanthin, leucin, tyrocin, etc., must all be taken care of.

When the intestinal flora become too abundant they have an autolytic action of their own which seems to kill them, otherwise the large intestine would be so filled with bacteria that it would interfere or prevent the passage of the waste material.

Nature guards against toxicity of the blood stream by the intricate lymphatic glandular and adrenal system. The thyroid, the suprerenals and the liver are given credit for being the main factors in preventing a toxic blood condition.

Now, how does intestinal putrefaction generally occur? The main pathological cause is bad food, food improperly cooked, food that is contaminated, food that is eaten in too great quantities, and food that is unbalanced with reference to the carbohydrates and proteid radical. The other causes would be imperfect metabolism during digestion from any change in the stomach, pancreas or liver, and mechanical defects.

The mechanical defects in the gastro-intestinal tract that occur in all cases of intestinal stasis should always be ascertained by radiograph. The splendid work accomplished in this direction by Dr. A. J. Quimby of the Polyclinic, New York, has placed radiograph findings in such cases upon a very firm and scientific basis; and to obtain a complete diagnosis we must have a thorough understanding of the many complications found, which arise from adhesions, ulcers and other lesions plainly shown by radiograph.

Intestinal putrefaction always results when intestinal stasis is present. All the chronic constipations, all autointoxications come from intestinal stasis. Intestinal stasis is due to bands of adhesion forming, preventing the active motility of intestinal peristalsis. Ptosis of the intestine, which is a dropping down due to a pendulous ab-

domen with inadequate muscular and ligamentous support, also plays a part in stasis. When we have a well-defined case of stasis the food is delayed in its passage through the alimentary tract, and putrefaction always results before the food is eliminated.

When cathartics are given to flush the intestine, we often note that headaches and malaise result—this is due to part of the waste material being evacuated, and the remainder continuing in the colon, subject to putrefaction.

FIG. 1.

KEY TO PLATES.

S. Stomach.
D. Duodenum.
P. Pylorus.
U. Umbilicus.
I. Ileum.
A. Appendix.
C. Cecum.
A. C. Ascending Colon.
H. F. Hepatic flexure.
S. F. Splenic flexure.
D. C. Descending Colon.
Sg. Sigmoid.
R. Rectum.

P. Point of tenderness.
—|| Radiated Pain.
Ad. Adhesions.
Dl. Dilatation.
L. K. Lane Kink.
L. Loop.
St. Stasis.
Pt. Ptosis.
Ul. Ulcer.
N. Neoplasm.
P. C. Peristaltic Contraction.
R. P. Reverse Peristalsis.
Dt. Deformity.

The symptoms of intestinal putrefaction are many—one case may present scarcely any, while others may give well-defined symptoms of grave illness.

In this series of cases we generally found the patient complaining of severe headache, chronic constipation, pains in the legs (especially the calves), pains in the lumbar sacral region, malaise, loss of ambition, more or less inability to carry on the daily tasks and occasional vomiting with nausea, some with ravenous appetite, while others with loss of appetite.

The general nutrition of these patients is always interfered with. Some are obese, and others have lost weight, but none have normal metabolism. The blood does not change materially, although the hemoglobin is always below 80. Blood pressure is not diagnostic. Analysis of the stomach contents will give either hyperacidity or an almost total lack of free HCl, with very low acidity. The stomach is generally dilated, and this is always a factor in intestinal stasis.

FIG. 2.

It is interesting to observe that in children with intestinal putrefaction tonsilitis and rheumatic pains are often noted; while in the Cornell Clinic for Children's Diseases many such cases observed would clear up entirely by giving proper food, without medication.

The case histories herein reported are typical:

Case No. 1.—Dr. M., age 31 years. Complained for nine years of severe frontal headaches, beginning on the supraorbital fossa, with loss of vision, and would have to discontinue work for two or three days. His urine showed marked excess of indican. He was inclined to eat considerable meat, and neglect the daily exercise. Was somewhat constipated. Condition, well nourished; skin moist; tongue coated; heart normal; liver easily palpable; stomach slightly dilated. No radiograph was taken in this case.

His meat was entirely stopped for two months, otherwise on normal diet. He was given four tubes of the culture of the bacillus bulgaricus, each tube representing 3 c. c., for six weeks, and then one tube a day. At the end of eight months he has only had two headaches of serious moment, and has gained six and a half lbs. in weight, feels in normal health. Prognosis good; urine negative. Case discharged as completely cured.

Case No. 2.—Miss I. D., age 30 years. occupation, sedentary. Complained of severe nervous headache and inability to sleep. Markedly constipated; urine, specific gravity 10.27, reaction markedly acid, albumin none, sugar none, phosphates in excess, indicanuria markedly in excess, amount voided in twenty-four hours sixty-three ounces; lungs, chronic bronchitis; heart, systolic murmur; liver not palpable; stomach, no dilatation observed; weight 116 lbs., poorly nourished; skin dry. Used coffee and cigarettes to excess. Coffee was stopped, patient made to exercise and remain out of doors. K. I., rhubarb and soda

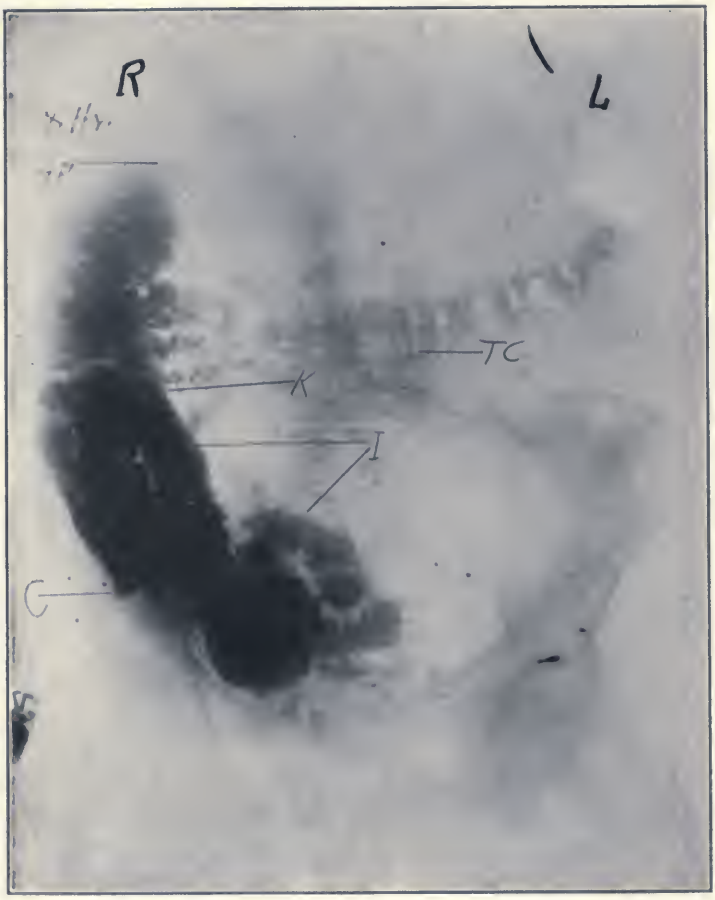


FIG. 3.

mixture was given, with Blaud's pills. Patient was told to drink eight and ten glasses of water a day, and is now on sodium salicylate, 5 grs. every second day. Urine negative, weight 124 lbs. Greatly improved. Supervision has ceased.

Case No. 3.—Mrs. K., age 33 years, first seen December 26th, 1912. Was sent to me supposedly suffering from diabetes. Frontal headaches. Acne spots on the body. Mental depression and impairment of sight.

Patient was radiographed by Dr. Quimby. Findings show intestinal stasis, marked degree; delayed food transmission—22 hours, with marked adhesions around the pylorus, and dilatation of the stomach. The other findings will be given under radiographs. Gastric contents show marked hyperacidity. The hemoglobin 72%, the red

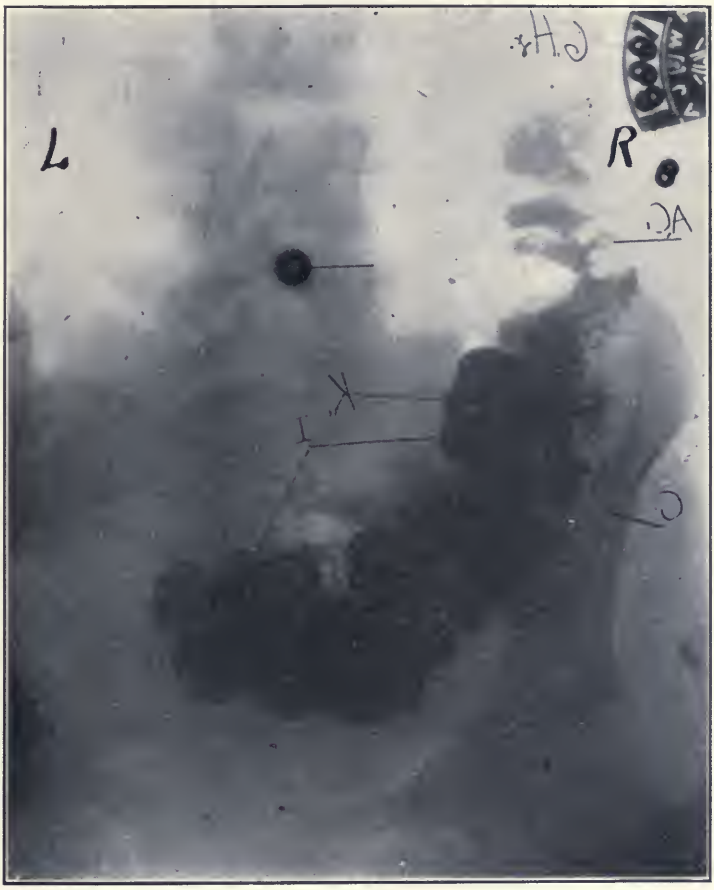


Fig. 4.

This diagnosis was ruled out. Weight 117 lbs., slightly neurotic, mentality high, appetite fair, vomits once or twice daily, half hour after eating. Bladder—urine increased in amount. Menses—painful, slight vaginal discharge. Family history negative; two members died with chronic interstitial nephritis. Complains of severe rheumatic attacks. Suffered for over three years with cramps in the legs. Easily tired. blood count four million, three hundred thousand. Blood pressure 135 m. m. Mercury Wasserman reaction positive—this may be due to the systemic absorption of bile from the diseased gall-bladder which was found upon operation. The urine showed traces of sugar, specific gravity 10.34, and indicanuria in great excess. Albumin negative. Patient kept getting worse, was vomiting three and four times a day.

Unable to retain any nourishment, and required enemas to relieve constipation. During this interval she was given sodium cacodylate by subcutaneous injection and protoiodide of mercury by mouth; also every other week for four weeks three tubes of the culture of bacillus bulgaricus daily. Then, about February 20th, operation was advised. March 3rd we admitted her to the French Hospital, and on March 5th she was operated upon by Dr. Alex. Nicoll. A gastro-enterostomy was performed, excision of the bile duct was done, and also an appendectomy. Primary union. Today her urine is normal. She weighs 114½ lbs. Has normal movements, and only regurgitates a very slight quantity of undigested food once every third or fourth day. She has no headaches, and has no cramps in her legs, and is greatly improved. Her diet is regular. Urine normal.

Case No. 4.—Mr. J. K., age 30 years, single. Family history, negative; was operated upon for appendicitis five years ago; lungs, normal; heart, normal; liver, easily palpable; stomach, somewhat dilated. Referred to me by Dr. McCarthy; somewhat neurotic; sleeps well; appetite good; bowels, constipated; urine, indicanuria in the beginning showed marked excess—last analysis normal—otherwise nothing of moment observed. Is inclined to overeat, and not take sufficient exercise. Complains of severe frontal headaches, so bad at times as to cause vertigo and loss of vision. No relief was obtainable by using cathartics.

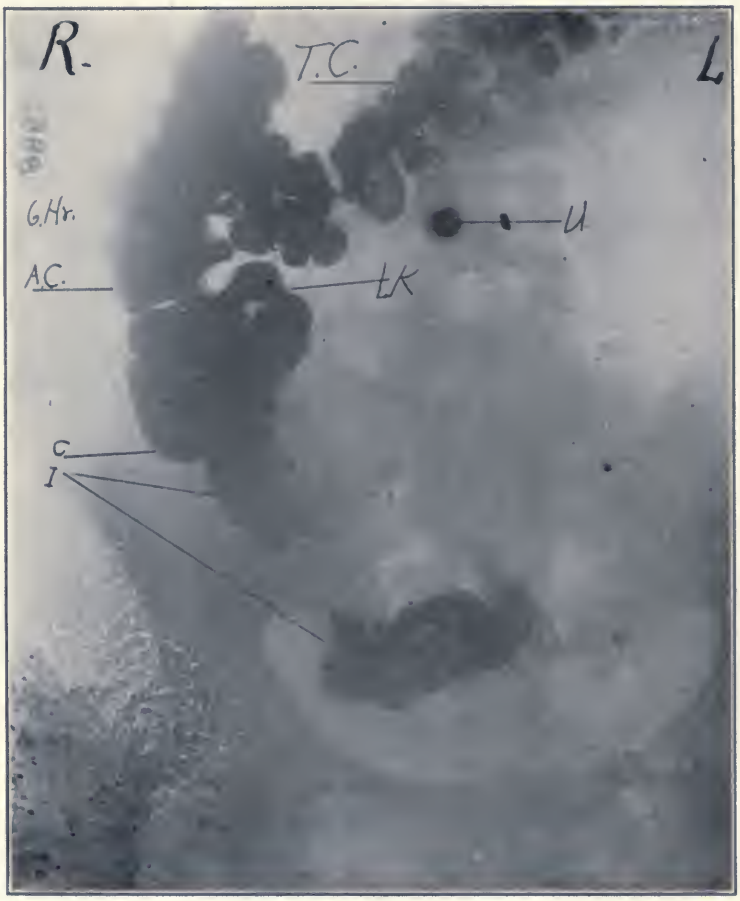


FIG. 5.

Diet was restricted with reference to pro-

teids and carbohydrates, otherwise he could have practically anything desired. Was given three tubes of the culture bacillus bulgaricus daily, and given $^1/_{10}$ gr. desiccated glandular extract three times daily. During the last three months he has only complained twice, but has not had any severe headaches. Made an uneventful recovery.

them, but without success.

He was placed on a protein-free diet, and given four tubes of the culture daily, glandular extract, and a pancreatic ferment. During the past two months has only had one headache—otherwise normal. An uneventful recovery. Indicanuria in the beginning showed marked excess—last analysis normal.

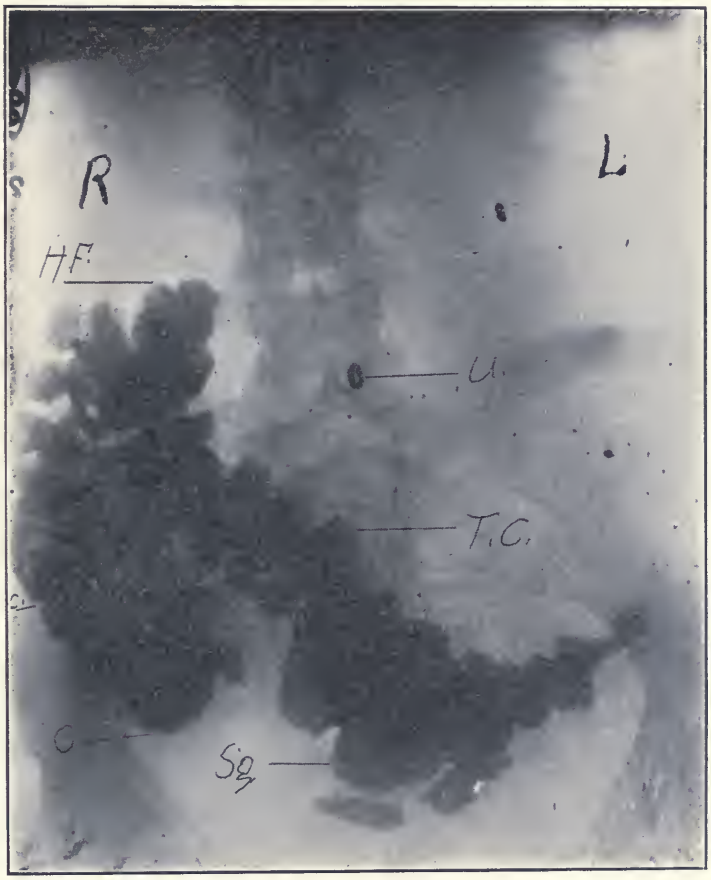


Fig. 6.

Case No. 5.—Dr. A. J. M., age 30 years, single. Family history, negative; previous history, negative; lungs normal; heart normal; liver normal; stomach somewhat dilated. Intestinal stasis 18 hours; blood normal, hemoglobin 85. Has for five years complained of severe headaches, so intense as to cause prostration—during onset he loses his vision, and suffers most excruciating pain—for the past three years has endeavored through various means to combat

Case No. 6.—Mr. J. D. M., age 61, Albany, New York. Married. Family history, negative. Was referred for traces of albumin in urine. Sleeps poorly; bowels constipated; urine increased in amount; weight 229 lbs.; very heavy eater and drinker. Complains of becoming easily tired; dizzy periods. On examination, heart hypertrophied; liver hypertrophied; stomach dilated; skin moist; patient considerably overweight. Stasis of food, 18

hours. All the proteid diet was stopped. Given six tubes of the culture daily. First urine analysis showed specific gravity 10.39; marked traces of albumin, granular casts; hyaline casts; sugar traces; indican, marked excess. The last three analyses negative. Patient is much improved, bowels regular; back on normal diet; uneventful recovery.

Case No. 7.—Mr. A. P., bank cashier, age 34 years. Had been declined by New York Life Insurance Co. because of traces of sugar. Family history, father died of nephritis; mother, negative. Previous history, negative; slightly neurotic; mentality high; sleeps well; appetite good, bowels very constipated; weight 180¼ lbs. Has severe headaches, is inclined to neglect his physical welfare, and not take enough exercise; blood pressure 190; pulse 79; is easily tired and desirous to sleep; lungs normal; heart normal; liver readily palpable; stomach somewhat dilated; food stasis 17 hours; urine marked traces of sugar, and albumin, quantities of indican, specific gravity 10.34. Last four analyses normal. He has greatly improved, gain 3½ lbs. in weight, and is now able and ready to pass his insurance.

He was placed on four tubes of the culture daily, given hypodermic injections of sodium cacodylate once every third day. The proteids were stopped. Otherwise his diet permitted as usual. Made an uneventful recovery.

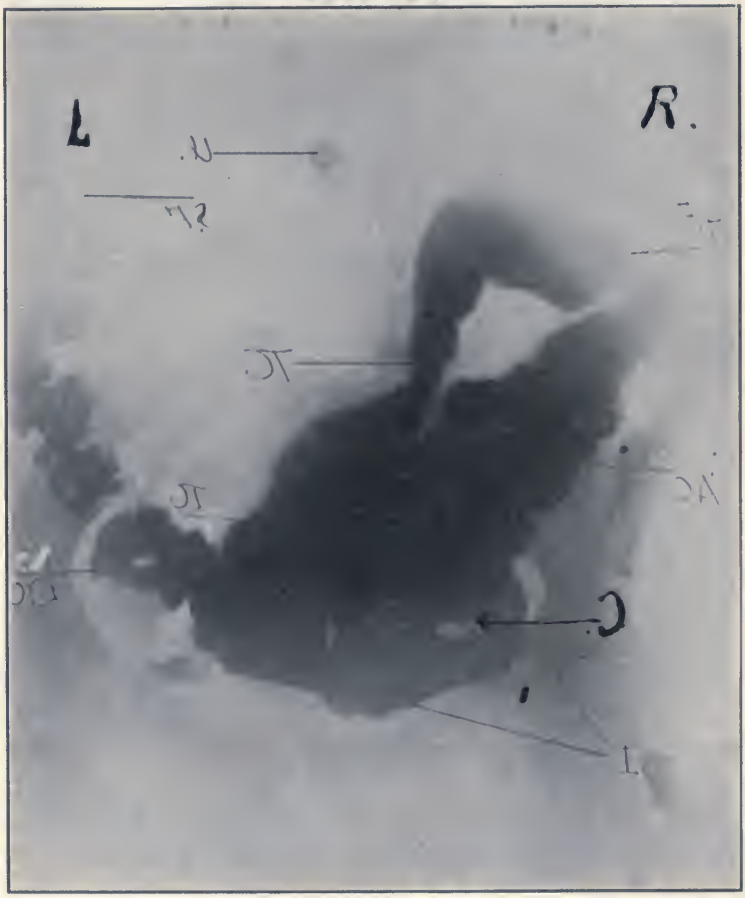


FIG. 7.

Treatment.—Treatment in cases of intestinal stasis with putrefaction must necessarily be based upon the findings of the

radiograph, and how seriously the food is interfered with in complete digestion.

The radiograph pictures will show if there are any grave mechanical defects present. The analysis of the gastric contents, the urine and feces will indicate just how much chemical interference we have with complete digestion; and, if possible, without certain foods that they have been accustomed to.

If the putrefaction is due to a negative chemical reaction during digestion, physiological rest, with only a liquid diet, should be prescribed. This might continue for two to three weeks, during which interval the stomach and intestinal tract are given an

Fig. 8.

we should endeavor to obtain as accurate an understanding of the patient's condition through the aid given by these methods.

The treatment depends a great deal upon how readily we can accustom our patients to follow the instructions given, and make them understand the necessity for doing opportunity to resume their normal functions, and then, if the patient is cautioned and warned about overeating, and what foods he should not touch, his condition should continue in a fairly comfortable state.

Then we come to mechanical defects in

the intestinal tract or stomach, which may be caused by adhesions, by ulcers, by stenosis and especially from ptosis and various other malformations which result in stasis. Should these defects be of such moment as to cause obstruction, constipation, pain or interference with assimilation, surgical interference is of value. The adhesions can be removed, and much can be done to eliminate the malformations found. Gastroenterostomy is only indicated in rare cases, and should not be undertaken except as a last resort. Resection of the gut or any intestinal anastomosis that may be indicated where stasis in advanced form exists, unquestionably is of benefit, but we must be fairly positive that palliative measures are of no value before surgical interference is permitted. In the obese cases oxidation seems to be greatly lessened, and the function of the thyroid gland and the adrenal system for some reason does not respond actively to the many stimulating agents in the circulation, and the consumption or breaking down of the fat molecule is lessened to such a degree that we have an excess of fat accumulating in all the different cellular structures of the body. These cases are most difficult to show a satisfactory result in. I have been giving glandular extracts and believe that they are of value. The patients must sub-

FIG. 9.

mit to a rigid diet and systematic exercise, otherwise they will continue just as before. To prevent nephritis of intestinal origin and functional glycosuria, for there is no question in my mind that if a patient continues over a long period of time with intestinal putrefaction, the kidney, liver and pancreas must always become damaged.

Now, in conditions that show more or less poisoning which sometimes we designate as ptomaine symptoms, the functional changes in the intestine must be given consideration. What does occur in the large intestine and lower portion of the small intestine? This paper does not admit of a long dissertation in physiological chemistry,

Fig. 10.

The thyroid gland and the suprarenal glands are also affected, due to the excessive strain of constantly endeavoring to eliminate toxic elements from the circulation, and a change occurs which results in serious impairment of metabolism, giving us asthma, chronic bronchitis, rheumatism, intestinal nephritis and diabetes.

but a few points perhaps would be of interest, showing how vital it is for digestion to be completed.

In the classic and remarkable thesis presented to the Faculty of the Graduate School of the Cornell University, for the Degree of Doctor of Philosophy by Eleanor Van Ness Van Alstyne, it was proven that

protein might be absorbed through the epithelial cells of the mucosa of the colon without digestion. This fact is of considerable moment, because protein is a distinct toxic element when found in the circulation. It is a difficult matter to ascertain if true animal protein is present, but with the newer pathological methods such as the precipitin and anaphylactic reaction a very fair degree of specificity may be obtained and an accurate determination derived, enabling one to distinguish between proteins so closely related as the blood serums of the horse, cow and sheep. We can determine the length of time it remains in the circulation and when excreted by the kidneys. When the digestive ferments were first shown to have the power of splitting protein, it was thought that the primary products, the proteoses and peptones, were the form in which protein entered the circulation. These substances are soluble and diffusive, and because they may pass through the parchment membrane we believed them to be absorbed in this form; further, experiments showed that these substances when introduced directly into the circulation were most toxic, and examination of the blood serum after a heavy protein meal did not show an increase in the proteoses; in fact recently it has been shown that the proteoses or peptones are not found in the blood, or

FIG. 11.

even in the portal circulation during the period of maximum absorption from the intestine which was collected and biologically examined.

The most recent investigations of the cleavage action of the digestive enzymes indicate that the splitting proceeds much further than was originally believed, and ologists at the present time that the proteins taken in the food are reduced by the process of digestion to the small constituent amino acids called baustine which are absorbed as such and resynthesized into the protein by the intestinal epithelium before reaching the circulation, or by other tissues after the absorption is completed. Never-

Fig. 12.

results in the production of a variety of amino acids from which protein may be synthesized either by the absorbing epithelium or possibly the liver, after their entrance into the circulation. In fact, there is conclusive evidence that amino acids are constantly present in the circulating blood, and it is believed by the majority of physi- theless, all of the amino acids so formed are not used at once for protein synthesis in this manner. It is well known that the majority of animals take more protein in their food than is required to replace the waste in the tissues. Nitrogen equilibrium may be maintained at a much lower level than the protein intake ordinarily provides,

so when any lesion of the intestinal tract is present wherein the epithelial cells of the mucosa are damaged, which we find in intestinal stasis, in putrefaction, in ulcer, in stenosis, etc., protein, as such, may be more readily taken into the circulation and the safeguards which nature provides to break down the protein molecules are interfered with, wherefore we have an excess of protein enter into the circulation, and many disagreeable symptoms will manifest themselves.

It has been pointed out that asthma is a direct cause of protein entering into the blood stream, and I believe that severe headache and many other disagreeable conditions of intestinal putrefaction may be ascribed to an existence of protein absorption.

Another view point might be taken, and that is the poisoning of the body is not caused by toxins in the strict sense of the word, but by relatively simple chemical substances, certainly not of a more complex nature than many of the alkaloids, for example, many of the amino acids which are found in the circulation are not toxic, but if they persist in the intestinal tract, and are then acted upon by the fermentative or putrefactive bacteria, more or less active poisons are manufactured which give rise, if absorbed, to severe toxic symptoms. Among the proteids which may thus be formed from material likely to be present in the intestine are hydroxyphenylethylamine, histitine, indolethylamine, agematime, isoamylamine, phenylethylamine, putrescine, cadaverine, indol and skatol. It is probable that many of these products are normally formed in small quantities in the intestine but never enter the circulation, being either destroyed in the intestine or combined with some other substance as sulphuric acid, which renders them non-toxic.

So, in conclusion, we might state that in the treatment of putrefaction the intestine must be aided by medication to overcome any defects which may be present and prevent the absorption of toxic substances that form therein. The media which has been most successful is unquestionably the culture of the bacillus bulgaricus.

The Bulgarian bacillus seems to have not only a stimulating action in the intestinal tract, but a distinct action in attacking the evil intestinal flora, and through its action upon the carbohydrates breaks down the large molecules into small molecules and then into lactic acid, which is of undoubted value in these intestinal cases.

The culture which I have used comes from the Fairchild Laboratory, and is composed of a modified peptone media implanted with 285 million gram positive strain B organism, which is non-pathogenic to the usual laboratory animals, and man.

The sodium cacodylate which is used hypodermically contains ¾ grs. to the ampule of 16 m., and is given every third day. This is an excellent adjuvant in the cases wherein a slight secondary anemia is found.

The glandular extracts are for the purpose of aiding oxidation, especially in the obese.

Summarizing, (1) The prevention of intestinal putrefaction is essential for the enjoyment of good health; (2) This can be done in every case provided you obtain the cooperation of the patient; (3) radiograph findings, combined with the laboratory tests, are necessary for a complete diagnosis; (4) In overcoming this condition the possibility of nephritis, diabetes, and other serious ailments is guarded against; (5)

surgical interference is only indicated when palliative measures are of no value.

DESCRIPTIVE NOTES OF RADIOGRAPHS.

(Case numbers correspond with those of illustrations).

Case No. 1. In this case all the bismuth exhibited was administered six hours previous to the examination. A large collection in the upper portion marked S. is the gastric residue; that marked D. is in the duodenum; J. Jejunum. That which has escaped from the stomach early is in the cecum and ascending colon.

Case No. 2. A large residue persists in the stomach. That within the colon was administered by enema. In this case stasis occurs in the stomach the result of ptosis. Stasis in the colon was produced by adhesions of the transverse colon and sigmoid.

Case No. 3. This radiograph was taken eight hours after a meal of bismuth; the entire collection is in the ileum, cecum and ascending colon. The delay in the ileum is due to an ileac kink marked K.

Case No. 4. This is taken six hours after the meal and the head of the bismuth column is half way up the ascending colon. A small amount is in the cecum while the greater portion is in the ileum. The delay is due to a kink at K. The fore shortening of the shadow prevents the constriction at this point being exhibited as it actually occurs.

Case No. 5. Six hours after the administration of the meal the head of the bismuth column was far advanced in the transverse colon. A moderate stasis occurs in the terminal ileum. A Lane kink exists marked L. K. but it is not offering much obstruction to the ileac contents.

Case No. 6. Radiographed twenty-four hours after the bismuth meal. The bismuth is distributed in the cecum, ascending and transverse colon to the left of the median line at which point a break occurs in the column to again appear in the sigmoid marked Sg. This is a well defined case of stasis in the cecum and first half of the colon.

Case No. 7. In this case the delay in the terminal ileum is evidently due to the backward pressure of the loaded cecum and ascending colon.

Case No. 8. It will be observed that the cecum rests entirely within the pelvis, that it is very much dilated and presents evidence of a constriction just above it. The ascending colon narrows down quite rapidly after leaving the cecum although in six hours after a meal there is very little ileac stasis. In this type of case the low position of the cecum somewhat favors the drainage of the ileum providing the latter is not kinked while practically all the stasis occurs in the cecum and ascending colon.

Case No. 9. This is a case of adhesions of the gastric omentum. The stomach maintains a high position and readily drains. The stasis is in the transverse colon and is due to adhesions at the splenic flexure.

Case No. 10. This illustrates a condition known as a patulous ileo-cecal valve, a common cause of ileac stasis and diagnosed by the enema, a portion of which passes into the ileum.

Case No. 11. This illustrates angulation in the right transverse colon, causing dilatation of the ascending colon and hepatic flexure.

Case No. 12. In this case the stasis is evidently aided by adhesions in the transverse colon marked Ad. The cecum rests in the pelvis. It will also be observed that there is dilatation of the left transverse colon near the splenic flexure due to a small adherent band. The descending colon readily drains, therefore it is of normal calibre.

17 East 38th Street.

STUDIES IN OBSTETRICS AND GYNECOLOGY.[1]

A Series of Contributions on Diseases of Women.

BY

ELLICE McDONALD, M. D.,
New York.

CHAPTER XIII.

DIAGNOSIS OF ECTOPIC PREGNANCY.

Introduction.—The diagnosis of ectopic pregnancy is seldom an easy task and often a difficult one. This is chiefly because of the varied pathological conditions which may exist as a result of the pregnancy and its termination. While the diagnosis is difficult, there is no condition in medicine in which it is more important to have an im-

[1]Continued from the April issue.

mediate and exact diagnosis. If it is not recognized, delay may result and treatment for other conditions be instituted.

Delay in the treatment of ectopic pregnancy is dangerous for several reasons. The hemorrhage may continue, adhesions may form and infection of the blood clot result. All of these minimize the patient's chances of recovery. Movement of the patient, particularly jolting or jarring movement, is most dangerous and many deaths have been reported while removing the patient to the hospital in a cab or ambulance.

Mistaken treatment for other conditions, such as curettage for supposed miscarriage, is of great danger in ectopic pregnancy. It causes renewed bleeding and makes operation for the ectopic pregnancy more hazardous.

For these reasons it is important that the diagnosis should be made immediately and exactly. There is considerable difference of opinion in regard to the value of the various symptoms and for this reason I have analyzed 4,000 cases of ectopic pregnancy in the literature with the hope of ascertaining the exact value of each symptom and in this way throwing some light upon the diagnosis. The cases analyzed were all comparatively early ones, before four months, as advanced ectopic pregnancy offers an entirely different problem. These cases did not all give an expression of all the symptoms, and, in some cases, important ones were omitted; but it has been thought better to give the percentage value of each symptom in a table without reference to the number of times each has occurred.

Amenorrhea	74 per cent.
Uterine hemorrhage	85 "
Average amenorrhea	40 days
Pain severe	66 per cent.
Onset of pain sudden	28 "
Pain and hemorrhage simultaneous	90 "
Symptoms on day of expected menstruation	9 "
Symptoms before the expected menstruation	17 "
Cast of decidua of uterus	3 "
Decidual shreds	16 "
Nausea	33 "
Breast changes	33 "
Pulse 96	33 "
Pulse 100 or over	33 "
Pulse 120 or over	33 "
Temperature above 100	50 "
Hemoglobin almost always between 30 and 70	"
Leukocytes, below 10,000	33 "
" , above 15,000	33 "
" , above 16,000	30 "
Mass palpable from abdomen	28 "
Mass palpable from vagina	88 "
Active bleeding at operation	5 "
Free blood in abdomen	90 "
Fetus found at operation	18 "
Cases in shock at operation	25 "
Average age	25-35 years
Greatest number at	30-33 "
Uterus displaced by tumor	50 per cent.
Vaginal bulging	53 "
Average number of children before ectopic	3.6 "
Number of multiparae	83 "
Mortality after operation in 5,973 cases	7.04 "
Mortality " " " tubal rupture	17 "
Mortality " " " " abortion	1.6 "
Repeated ectopic pregnancy—168 in 4,180 cases in series	4 "
Tubal abortion occurred in	70 "
Tubal rupture " "	30 "

Symtomatology.—In considering the symptoms of ectopic pregnancy it must be remembered that we have to deal with a condition which may take different forms and have varied terminations. First it is a pregnancy and the symptoms of pregnancy are usually present. The women, being mostly multiparae, have been pregnant before and believe they know when they are in the family way. This is of considerable value in the history.

Amenorrhea, a symptom of pregnancy, is one of the most constant signs, being present in three-quarters of all cases. Those cases

in which it was not present were in part cases which came to operation before the expected date of the menstruation and cases operated upon before rupture.

The average duration of the amenorrhea was 40 days and in only 10 per cent. of the cases were two periods missed. The cessation of the amenorrhea and the beginning of the uterine hemorrhage usually coincided with the beginning of pain. It is true that in thirty per cent. of cases, there was mild colicky pain before the appearance of hemorrhage and while the pregnancy was intact.

Uterine hemorrhage was present in 85 per cent. of cases, being the most constantly present symptom. Cases in which it was not present were mostly those which had come to operation before the date of the expected menstruation. Hemorrhage came as a rule on the 40th day and continued without intermission. It was continuous in twelve cases to one in which it was interrupted. This fact is of great importance in the diagnosis of ectopic pregnancy.

The character of the uterine bleeding was of a different nature to the usual menstruation and women commonly recognize this fact. It is frequently of the kind known as "spotting" and comes constantly, but in small amounts. It is most frequently altered in consistency and appearance. It is usually dark powdery red in character and occasionally (16 per cent.) contains "shreds," "pieces of flesh," etc.

The onset of the bleeding usually (90 per cent.) coincides with the onset of pain. This is believed to occur at the time at which intratubal rupture takes place, to terminate later in tubal abortion or extratubal rupture, as the case may be. The ectopic pregnancy does not develop within the mucosa of the tube, but underneath the mucosa and between the muscular coats. The first change is usually bursting through the mucosa to enter the lumen of the tube. When this occurs, there is usually first hemorrhage into the peritoneal cavity from the tube and, at the same time, the uterine decidua is cast off in the form of uterine hemorrhage of the peculiar dark red color. After the decidua is all cast off, the dark red appearance of the uterine hemorrhage disappears.

The onset of symptoms, pain, etc., usually then dates from the termination of the amenorrhea and the beginning of the uterine hemorrhage. This is the time of the first disturbance of the ectopic pregnancy. In five per cent., pain was followed by bleeding, while in five per cent. there was pain and indisposition without bleeding.

The character of the pain was severe in two-thirds of all cases. It was sudden in about one-fourth of all cases. It was in the lower abdomen and usually upon the affected side in about sixty per cent. It was general over the whole abdomen in about thirty per cent.

In about three-quarters of all cases, the severe pain was preceded by pain of less severity, which came on gradually.

The first pains are usually sharp and colicky, while the severe pain following is usually sudden, paroxysmal and cramplike.

This severe pain, which is sudden and unheralded in one-fourth of the cases and preceded by lesser pain in three-fourths, is variously described as "cutting," "knife-like," "cramp-like," etc. It is periodic and paroxysmal, and is followed by syncope in about one-fourth of the cases. It is due to peritoneal irritation from the extravasation of blood from rupture or tubal abortion.

It is periodic, because intratubal rupture is associated with repeated small hemorrhages which distend the tube, and the leaking of blood upon the peritoneal surface causes severe pain, similar to that due to any foreign substance as sudden rupture of intraabdominal abscess or secondary hemorrhage. It is paroxysmal in character and similar to pain from intestinal peristalsis in other peritoneal irritations. In extratubal rupture, the blood is extravasated more rapidly, so that the pain is more severe and the shock and collapse more marked. In tubal abortion with more gradual bleeding, the pain is usually more persistent and apt to recur. The return of the paroxysm may occur several times a day and the character of the pain is periodic and crampy at these times.

The first onset of the pelvic pain is associated with shock and syncope in about one-fourth of all cases. In the other cases, there is quite frequently weakness not amounting to fainting or syncope. In about one-half of the cases of syncope, from reports at operation, the shock was of nervous origin due to peritoneal irritation and, in half of the cases, it was due to extensive hemorrhage plus peritoneal irritation. The shock usually occurs once, but in about five per cent. there were repeated attacks.

In about one-third of all cases, there was other evidence of pregnancy besides the cessation of menstruation. Milk, areola of pregnancy or tingling of the nipples is present in about one-third of cases and nausea, sometimes due to shock, is present in about the same proportion.

With the onset of pain and uterine hemorrhage, there is usually immediate alteration in the pulse rate. It is usually increased and often of the thready character, associated with shock. One-third of the cases have a rate of about 96; one-third 110 or over and one-third 120 or over. So that it may be said that the pulse is usually increased in rate, and usually above 110.

The temperature is usually slightly increased in degree. It is quite often subnormal at the time of the acute pain with symptoms of intra- or extratubal rupture, but soon becomes febrile. In about one-half the cases, it is above 100° and is seldom above 102°.

The hemoglobin is usually decreased in amount. It is seldom higher than 70 per cent. and rarely lower than 30 per cent. The average hemoglobin finding, where it was noted in these cases, was 49 per cent. The white blood count is commonly increased, although this is not constant. In one-third of cases it was below 10,000, in two-thirds above this. In one-third it was above 15,000, and one-third above 16,000 white cells. In the cases of shock, the leukocytosis is usually marked, not from infection but from the previous hemorrhage. The polymorphonuclear cells are usually very high in percentage in shock.

There are sometimes other signs of peritoneal irritation. These take the form of a desire to strain after defecation and a feeling of inability to empty the bowels. Dysuria and frequency of urination also occur. Either one of these symptoms was present in rather more than one-third of all cases.

Examination of the abdomen seldom shows any tenderness before rupture, but after the onset of uterine hemorrhage and pain attending the termination of the pregnancy, tenderness over the lower abdomen is almost invariably present. This is usually more marked on the side where the preg-

nancy occurs. These symptoms are associated with rigidity, when there is sufficient peritoneal inflammation and irritation from extravasation of blood. If the amount diffused be considerable, there may be some distension of the lower abdomen which may be cone-like. Distension and rigidity may be absent, but tenderness is always present: Tympany is not uncommon in primary intraperitoneal rupture with marked hemorrhage. There may be superficial dulness on percussion over the pubes and in either flank with a resonant note on deeper percussion. A thrill may sometimes occur in the stomach region, although no sign of fluctuation can be felt. On turning the patient over, dulness in the flanks may persist, but gradually disappear in a way which is characteristic of effusion of blood.

On vaginal examination, the mucosa is usually congested, but not to the marked degree of normal pregnancy. The uterus is usually slightly enlarged with a softened cervix, but as a rule none of the bimanual signs of pregnancy, as Hegar's or the author's, are felt. Intermittent contractions, however, are not uncommon. Movement of the uterus usually causes pain. A mass is felt usually on one or other side and behind the uterus. This mass was felt in two-thirds of all cases and was always tender. Pelvic tenderness on examination is one of the most characteristic symptoms of ectopic pregnancy.

If the pregnancy is uninterrupted, the tube usually prolapses into the cul-de-sac of Douglas; if rupture takes place, the blood seeks the lowest place and forms a hematocele in the same situation. The consistency of the mass is doughy and it can be dented with the examining finger. The situation of the mass and its size is altered by the amount of the extravasated blood and the direction it takes. If the mass is large, the uterus is usually displaced to the normal side. If the uterus is displaced by a doughy tumor which pulsates indistinctly, it is very suspicious of ectopic pregnancy. The mass is usually tense and elastic and often lobulated. This elasticity often distinguishes the condition from the board-like hardness of pelvic abscess.

Anterior or posterior colpotomy has been suggested as a possible means of diagnosis by Bandler. The vaginal vault may be opened over the tumor until the discolored peritoneum covering the blood is seen. The diagnosis may be possibly made in this way without opening the peritoneal cavity, the dark blue shimmer showing through. Puncture of the posterior vaginal vault through a speculum may be done. If the cervix is pulled down and the needle thrust directly in the mid line and close to the cervix, no harm can result and free blood is usually found. Muhsam[1] is a strong advocate of this method and states that in 117 of 124 cases the findings were positive, if not at once, after the woman had been raised to a sitting position. He ascribes the success of treatment at the Moabite Hospital of 108 cases without a death to early diagnosis and prompt operative measures. His greatest dependence in diagnosis is placed in puncture of the pouch of Douglas.

Acetonuria is often present in ectopic pregnancy and is believed to be due to the absorption of products of blood. The same is true of urobilin.

Differential Diagnosis.—The differential diagnosis usually requires some thought. It is of greatest importance to accurately investigate the history, for this will usually differentiate ectopic pregnancy from lesions

[1] Muhsam. *Therapie der Gegenwart*, May, 1913.

with similar findings upon vaginal examination. The chief error is in miscarriage, associated with some pelvic mass, as cystic ovary, pus tube, hematosalpinx, etc. This gives the symptoms of pregnancy with the pelvic lesion. Miscarriage with retroversion of the uterus, where the fundus is felt through the posterior vaginal fornix is sometimes very confusing. The carefully taken history, the absence of marked pelvic tenderness, the different feel of the pelvic mass, should differentiate these conditions.

Normal pregnancy in which there is marked asymmetrical development in one cornua of the uterus with marked thinning and softening of the enlarged part, is not infrequently mistaken for ectopic pregnancy. This type of pregnancy is described as similar to a face with a toothache and swollen cheek. It exists within the limits of normal pregnancy, but should be easy to differentiate if the signs of pregnancy, as described in my paper in another issue, are known.

The acute onset of the condition makes it necessary to differentiate it from the acute infections as appendiceal rupture, pelvic abscess, acute gastric ulcer, acute pus tubes and acute appendicitis.

Peritoneal hemorrhage may occur from other sources, such as ovarian hematoma, hematosalpinx, ovarian papilliferous adenocystoma, pachysalpingitis with hemorrhage, etc. In all these cases there may be peritoneal hemorrhage which, however, is not usually associated with marked pain or symptoms of pregnancy.

The diagnosis of ectopic pregnancy is based upon the relation of the history to the physical examination. It is, as my teacher, Charles P. Noble, has often said, not difficult in 85 per cent. of cases, difficult in 10 per cent. and almost impossible in 5 per cent. With a definite history of a lesion in the pelvis, as shown by pain, tenderness and symptoms referable to the genitalia, with a history of amenorrhea, followed by a continuous slight hemorrhage of a dark powdery red character, different from menstrual blood, with paroxysmal periodic pelvic pain, with an increase in pulse rate, abdominal tenderness and a doughy tender mass beside the uterus, the diagnosis should be exact.

Changes in the uterus, lessened hemoglobin, congestive changes in the breast, distention of the abdomen and alteration in the consistency of the cervix, bring corroborative evidence of value.

A history of missed menstruation, followed by severe pain and uterine hemorrhage of a character different from the menstruation should lead one to suspect ectopic pregnancy.

The most constant symptoms are amenorrhea with a simultaneous onset of uterine hemorrhage and pain. The cases difficult to diagnose are those of long standing, where the hematocele is infected and the diagnosis to be exact should be infected hematocele.

The early diagnosis of ectopic pregnancy is of vast importance in the treatment of the condition. Prompt operative measures cannot be instituted unless diagnosis is early and exact. Care of the patient before operation is also of importance. Many deaths result from careless handling in transportation to the hospital. Operation under a mistaken diagnosis as curettage for supposed abortion is often disastrous. For these reasons, every effort should be made to diagnose ectopic pregnancy early and exactly.

CHAPTER XIV.

LACERATION OF THE PERINEUM AND PRIMARY REPAIR.

Introduction.—As long as women continue to have children, perineal lacerations will continue to occur. Their study is a commonplace one, not associated with the romantic and imaginative associations as are cancer and tuberculosis, but not the less necessary and important. The mere fact of the great prevalence, occurring as they do in half the women who have children, is sufficient to require that the study should be exact and persistent.

The cases reported here were studied at labor and the picture of the laceration drawn upon a stamped outline. This may now be obtained from dealers supplying the medical profession with rubber stamps, and is of great use in the study and record of perineal lacerations. It is a useful record to compare after healing has taken place, and inculcates habits of accuracy in observation. The first historical reference to the subject is found in an early work supposed to have been handed down by tradition and edited by an unknown author who states that Tortula, a midwife attached to the school of Salernum, who lived in the eleventh century, cured a laceration of the perineum by operation—*"Postmodum ruptura intra anum et vulvam tribus locis vel quatuor suimus cum filo de serico."*[1]

Ambrose Paré[2] was another of the early investigators of the subject and is credited with having performed the operation. He reports a cure of two cases, but does not state that the operation was done immediately after labor. He gives directions as follows: "But if through the violence of extraction the genital parts are torn, so that the two cavities, the rectum and vagina, are torn into one, the tear must be stitched up, and the wound cured according to art. I have thus cured two women living in Paris."

Various other investigators followed Paré, amongst them his pupil, Guillemeau,[3] who operated upon one case of complete rupture of the perineum six weeks after labor. He pared the edges of the old cicatrix and used one figure-of-eight and two interrupted sutures. The operation was a success. Others who performed the operation for complete tear were De La Motte, Morlanne, Saucerotte, Noël, and Dupuytren in France, Rowley in England, and Oslander and Dieffenbach in Germany. Dieffenbach[4] wrote extensively upon the subject of complete perineal tear and followed the plan of making lateral incisions at each side of the perineum after suturing the recto-vaginal septum. In 1837 he advised the primary repair of all lacerations of the perineum, including first and second degree tears.

Amongst American surgeons Mettauer[5] of Virginia published a report of a successful operation for complete tear six months after its occurrence. He used sutures of lead and fastened them by twisting.

Roux[6] wrote extensively upon the subject and published many successful cases of complete perineorrhaphy. He was an earnest advocate of the operation.

Amongst those who did primary operations for incomplete tears of the perineum were Bayer[8] in 1823, Churchill[9] in 1824, and Williams[10] in 1827, while Alcock[11] performed the intermediate operation for incomplete laceration in 1820.

The secondary operation for laceration of the second degree tears also was first done about this time. Fricke,[13] in 1835, has done the operation four times with

three successes. Nick[14] also reported in 1838 that he had done two operations for incomplete tear of the perineum. Baker Brown[15] was, however, the surgeon who did most to bring the operation into general use and encouraged others to study the subject of perineal injuries. In 1866, Baker Brown had done 112 operations upon the perineum. His work stimulated Savage[16] to excellent researches upon the anatomy of the perineum, which have remained classic in gynecological literature.

Following after these were Hegar, Sims, Agnew, Emmet, A. Martin, and Lawson Tait. Of these, Emmet[17] has been the greatest contributor toward the subject and recognized that the torn muscles and fasciae caused a loss of support to the pelvic floor. His operation is the one commonly performed at the present time.

Since the time of these masters, a multitude of new operations have been devised to restore the anatomical support of the pelvic floor and close the perineal wound, caused by descent of the head at labor. All these operations have as their aim the intimate approximation of the edges of the torn fasciae and muscles. To this end, in secondary operations, many forms of denudation of the vaginal mucous membrane have been exploited. The majority of these attempt the excision of the scar tissue of the old wound and the restoration of the torn muscles and fasciae.

Without a proper appreciation of the causes, processes, and forms of perineal rupture, it is useless to attempt to judge the value of each modification of the various operations. With this end in view I have made sketches of forty-eight consecutive perineal lacerations at the time of labor and have noted the most evident and directly causative factors. These lacerations occurred in 100 women, of whom 90 were primiparae. This gives a percentage of occurrence of forty-eight per cent., which is within Williams' estimate of 45 to 58 per cent. Every wound of the mucous membrane other than a small tear of the fourchette has been reckoned in the series, none over 1.5 c. m. in length have been excluded.

Causes.—The various causes of perineal laceration are usually cited as follows: 1. Too rapid expulsion of the child, so that tearing of the perineum instead of stretching results; 2. Relative disproportion between the presenting part and the parturient outlet; 3. A faulty mechanism of labor whereby the largest circumference of the head passes the perineal ring; 4. The use of forceps.

Rapidity of delivery is without doubt the most frequent cause of perineal laceration. This is particularly seen in those cases of precipitate delivery where the head comes through the birth canal rapidly and impinges upon the perineum with almost the force of a blow. This rapidity of advancement of the head is sometimes seen in cases of contracted pelvis, where strong uterine pains are required to force the head through the bony pelvis, with the result that the less resistance of the soft parts does not retard its way. The quick descent of the head was also seen in one case (No. 25), where the membranes had remained intact until the head had come through the brim; when the membranes ruptured, the head was advanced with great rapidity, causing a laceration in a multipara with a comparatively lax outlet.

The passing of the head through the perineal outlet should undoubtedly be retarded, until the parts have softened and stretched. A preliminary digital stretch-

ing is most useful in primiparae, although often a painful procedure. It can, however, be done during the labor pains and is a means of stimulation of their force and frequency.

A frequent cause of perineal laceration is the pressure of the head upon the perineal body and the lack of retraction between pains. The maternal parts become bloodless and tense and tear readily with further descent of the head. An additional factor in the production of this condition is the attempt to control expulsion by pressing the taut perineum against the sinciput. This wounds the perineum and aids in the production of the anemic condition. The advancement of the head should be controlled without making any pressure upon the perineum.

Strong pains are a definite factor in the production of perineal injuries, but may be readily controlled by chloroform.

Relative disproportion between the presenting part and the parturient outlet is commonly thought to be one of the main causes of perineal injuries.

In any attempt to estimate the size of the fetal head in relation to the perineum, it should be decided which is the greatest diameter of the fetal head to engage in the perineal ring. In this study, it will be considered to be the occipito-frontal diameter, which comes into relation with the perineum by the final extension of the head. It is the diameter most capable of accurate measurement and gives a more dependable estimate of the size of the fetal head than do the suboccipito-bregmatic or biparietal diameters. The various circumferences of the fetal head offer too much possibility of error in measurement to make them useful as indications.

Therefore, in attempting to estimate the size of the presenting part in its relation to the size of the perineal ring, the greatest engaging diameter, the occipito-frontal, is taken as a criterion. However, as the size of the head increases in direct proportion to the weight of the child, the increase of weight in its relation to perineal lacerations is also considered. This increase in the size of the fetal head in proportion to the weight was shown to be constant in 100 cases studied in its relation to intra-uterine cephalimetry.[19]

Varieties.—In this series, the 48 perineal lacerations may be divided into two classes: 1. Those not involving the muscle; and 2. Those involving the muscle of the perineum. Of those not involving the muscle, there were 21. The average weight of the 21 babies was 3,310 grammes, and the average occipito-frontal diameter was 11.27 cm. The 27 cases of lacerations involving the muscle had children averaging 3,550 grammes, and with an average occipito-frontal diameter of 11.75 cm. The average weight of 100 babies, of whom these 48 cases here reported are a part, was 3,300 grammes, and the average occipito-frontal diameter was 11.40 cm. Therefore the result may be summarized:

	O. F. Diam.	Weight.
21 cases of laceration not involving muscle	11.27	3,310 gm.
27 cases of laceration involving muscle	11.75	3,550 gm.
100 cases, including 48 cases of laceration	11.40	3,300 gm.

From this summary it will be seen that the babies causing lacerations not involving the skin were of average weight, but of less than average size of head; while those causing lacerations involving muscle were of more than average weight and size

of head. However, the slight increase in weight of two hundred grammes (7 oz.) can hardly explain the causation of the lacerations in view of the fact that the heads were but slightly larger than average. Nor will the fact that, in 21 cases of minor lacerations, the fetus was of average weight and less than average size of head explain the causation of these tears.

The causation of perineal lacerations, while undoubtedly influenced by considerable increase in size of the fetal head, does not depend to any extent upon this condition. It must, therefore, depend more upon the size and condition of the perineum itself than upon the size of the fetus and fetal head. The disproportion may be due to firmness of fiber and rigidity of perineal structure.

Faulty mechanism of labor is undoubtedly the cause of a small percentage of lacerations, but this has an influence in but a small number of cases. Amongst them are those cases where the occiput does not present under the symphysis as in delivery by face to pubes. Whenever the flexion of the head is not sufficient, a larger diameter than necessary must pass the perineal ring. If flexion is good, the occiput may pass under the pubic bones before the occipito-frontal diameter engages in the outlet.

In breech deliveries the reverse must ensue, i. e., the occiput remain within the ring and pivot under the symphysis, allowing the sinciput to engage first in the ring.

The use of forceps as a causative force is one which varies very much with the methods of different operators. The harm they cause depends upon: 1. The kind of forceps employed; and 2. Upon whether the operator delivers the head with the forceps or not.

Forceps with long blades of the type of the Simpson forceps may cause laceration of the perineum in two ways. First, directly on a backward pull by the breadth between the shanks where they join the handles, which unduly stretches and wounds the outlet at a level with its greatest frailty, the posterior fourchette. Second, the blades themselves do not closely approximate the fetal head, and the edge of the blade extending beyond the head, impinges upon the vaginal floor and is forced into the tissue. This condition is quite common when attempts are made to deliver the head through the ring without removing the forceps. When the handles of the forceps are turned upward in order to extend the head, the blades, not fitting snugly over the head but grasping the parietal processes firmly, turn upon these eminences as upon a pivot, with the result that the point of the blade extends beyond the head and impinges upon the pelvic floor. Further descent of the head drives the point into the tissue and starts a laceration. In such conditions it requires but a small beginning of a tear in the mucous membrane to result in a large laceration.

The secret of success in the prevention of perineal lacerations is to keep the mucous membrane intact: once the mucous membrane is ruptured, as by the point of the forceps' blade, the head stretching these tissues often causes a severe tear, while, if the mucous membrane is kept intact, delivery is often made successfully through most rigid perinea. In other words, the tissues are like cotton, in which, if a tear is once begun, it may be easily extended. Such was the result in one case (No. 7), here reported, where a small laceration was caused by the points of the Elliott forceps

and the muscles split so that the finger could be thrust between the muscular planes to the skin of the ischiorectal space.

It is necessary in delivery to prevent the parturient from slipping away from the hand protecting the perineum during delivery. The diameter of the fetal head from the brow to the back of the neck should be brought into the median line. The right hand restrains the sinciput or forehead; while the left index and middle fingers are worked into the angle below the symphysis and lift the back of the head until the back of the neck enters the symphygeal angle. The soft parts are pushed backward over the dip of the occiput in order that the occiput may be delivered before the sinciput and the head escape delivery in the longest diameter, the occiput frontal. As soon as the head is under control the patient should be instructed to count rapidly or to take deep rapid breaths in order to eliminate further straining. If chloroform is given, the straining may be controlled in this way. The occiput must be delivered before extension of the head is allowed.

Stretching the perineum is always advisable before forceps operation. Sometimes this may be done by dilatation of the vagina by a rubber bag as first advised by Macomber. This is so painful as not to be permitted until an anesthetic is given, but manual dilatation by massage and stretching is useful before operative deliveries.

It should be remembered that the essential part of the perineum is composed of fascia and muscle and that fascia will not stretch, while muscle will. The fold of skin and superficial fascia extends for 3 or 4 cm. beyond the musculature below. For this reason, in order to avoid laceration into the muscle, where a laceration must obviously occur, an incision or episiotomy may be made for 2 cm. or a thumb's breadth into perineum without cutting into muscle.

This allows of enough enlargement of the outlet and is more readily repaired than is a perineal tear. The incision should be made backward and downward and at the side below the outlet of the vulvovaginal gland. This is a useful procedure, not sufficiently used. It was known centuries ago and referred to by Harvey, discoverer of the circulation of the blood and by De La Motte who was a close observer of perineal injuries. It may be very readily repaired with No. 2 chromic gut. v. Ott has done 364 episiotomies and is most laudatory of the operation.

The secret of avoidance of tears in forceps delivery is the use of proper forceps and the removal of the forceps as soon as the head can be controlled by the hand.

Trials by practical use of many models show that semi-fenestrated forceps as described in a previous chapter, fit the head well, cause little traumatism to the vagina and perineum, and are easily applied without causing abrasions or injury. These forceps may be applied and the head drawn down until it can be controlled by pressure upon the forehead between the coccyx and the anus. No attempt should be made to deliver the head without first removing the forceps.

With the acquirement of skill and the use of proper forceps, there is no reason why there should be more lacerations directly due to forceps in instrumental deliveries than in non-instrumental deliveries. The head may be delivered as slowly and as much care taken of the perineum as in non-instrumental deliveries.

A frequent cause of perineal laceration which is often credited to the forceps opera-

tion is the traumatism done by the prolonged stay of the head at the outlet and the pressure caused by the ineffectual labor pains pressing the presenting part against the pelvic diaphragm. In those cases (Nos. 19, 30 and 38) in which the head had remained some time upon the pelvic floor, the resulting lacerations were extensive and deep; the tissues were edematous and fragile, being repaired with difficulty, as the sutures cut out. The presenting head should not be allowed to remain upon the perineum without advance for more than an hour and a half, and usually not that time.

Posterior positions are also often spoken of as a cause of perineal lacerations and undoubtedly predispose to this condition. Forceps rotation is dangerous with the old style long fenestrated forceps. The vaginal mucous membrane may be stripped off, as was the result in one case (No. 32), reported here. However, with the modern solid blade model, the operation of rotation by forceps is easy, and there is but little danger of damage to the mucous membrane.

Scar tissue in the perineal ring as a result of old wounds or previous perineorrhaphies makes the perineum more easily torn. The fibrous scar tissue has not the elasticity of normal perineal structure, and rupture is apt to occur at this spot. In several cases of multiparae (Nos. 5, 8 and 39), the perineal outlet was of fair size, yet a laceration occurred at the site of the scar.

It is frequently stated that the shoulders in head presentations often cause lacerations of the perineum. Such is not my experience. The shoulders alone seldom originate a laceration; but large shoulders quite frequently increase the extent of a tear which was begun by the head. The phenomenon already referred to holds good that a tear once begun readily extends; such was the result in one case (No. 18) in this series.

For the purpose of consideration of these lacerations, they may be divided into tears of the anterior and posterior part of the perineal outlet. The posterior tears may again be divided into:—1. Tears not involving the muscle, or minor tears; 2. Tears involving the muscle, or major tears; and 3. Tears involving the sphincter.

The relation of the skin surface to the lacerations has no bearing upon its depth or gravity. Ofttimes a laceration may not involve the skin surface, yet extend deep into the muscle of the pelvic floor. Such cases are Nos. 7, 24, 27 and 36. There may be extensive injury to the pelvic muscular support without any rupture of skin surface.

Minor lacerations occurred 21 times. Forceps were done 4 times. The average weight of the babies, as before stated, was 3,310 grammes.

Major lacerations occurred 27 times. There were 11 forceps deliveries. The average weight of the babies was 3,550 grammes.

No cases of sphincter tear occurred in this series. The author has repaired a number of sphincter lacerations in obstetrical work and has had two occur in his own hands. One of these was due to an ill-directed and ill-controlled forceps traction when the head was near the perineum. The head came down suddenly with the last traction, and as the direction of the traction was wrong, ruptured the perineum. The other case was one in which, while an assistant delivered a case of placenta previa under my direction, the arms became extended in the breech extrac-

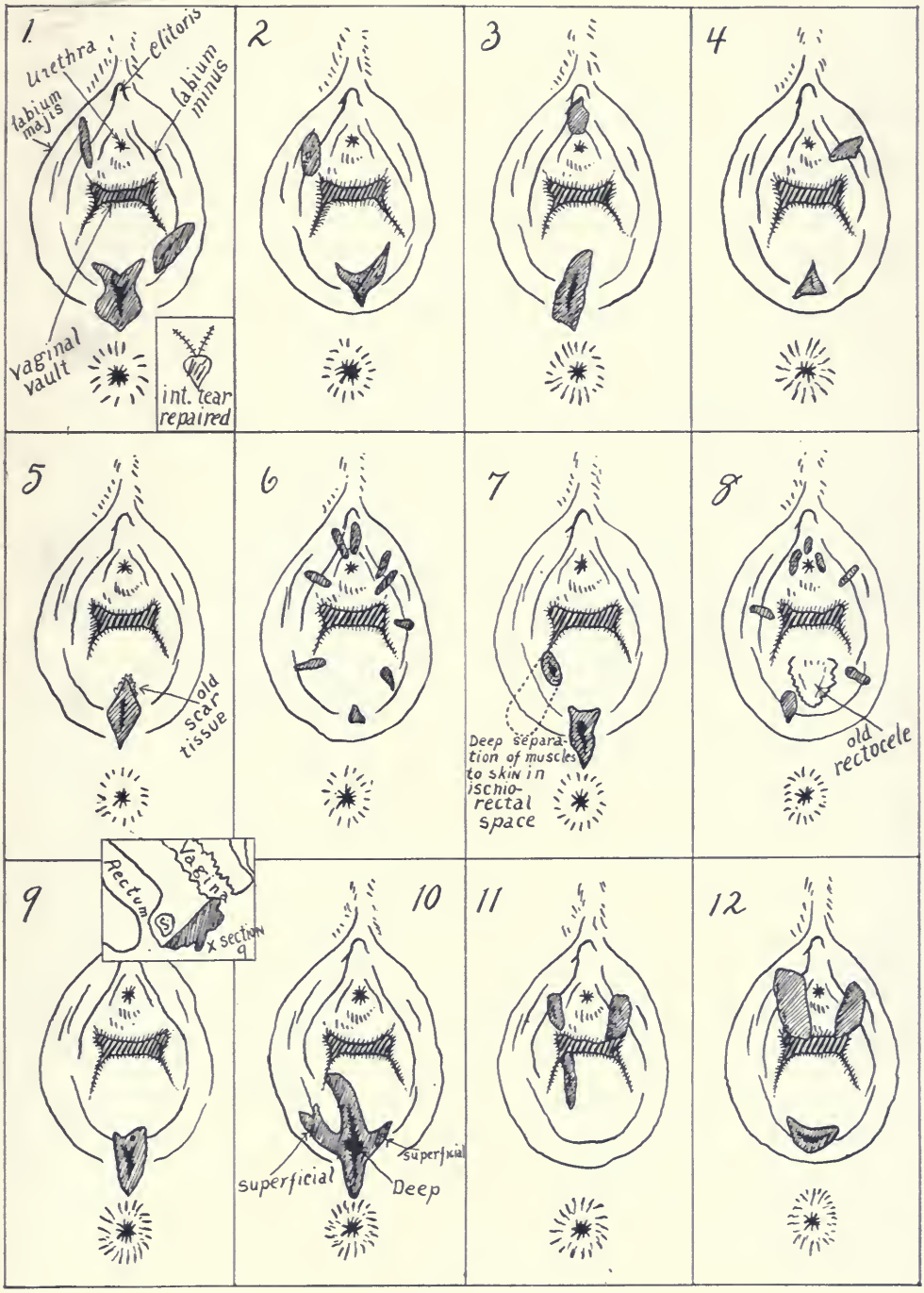

1
Urethra
Clitoris
Labium majus
Labium minus
Vaginal vault
Int. tear repaired
2
3
4
5
Old scar tissue
6
7
Deep separation of muscles to skin in ischio-rectal space
8
Old rectocele
9
Rectum
Vagina
S
X section 9
10
Superficial
Deep
Superficial
11
12

Fig. 1.

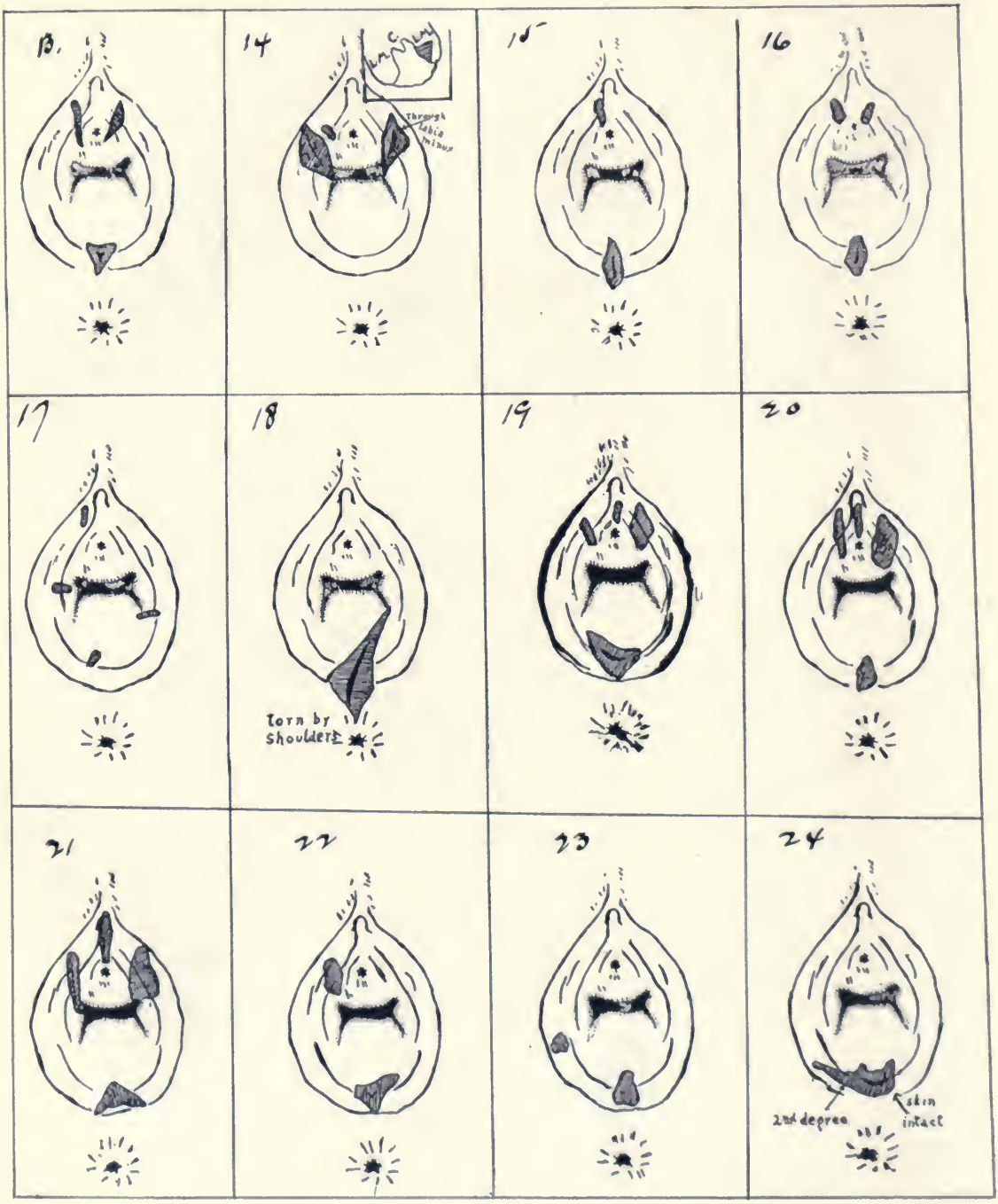

13.
14
Through labia minus
15
16
17
18
Torn by shoulders
19
20
21
22
23
24
2nd degree
skin intact

FIG. 2.

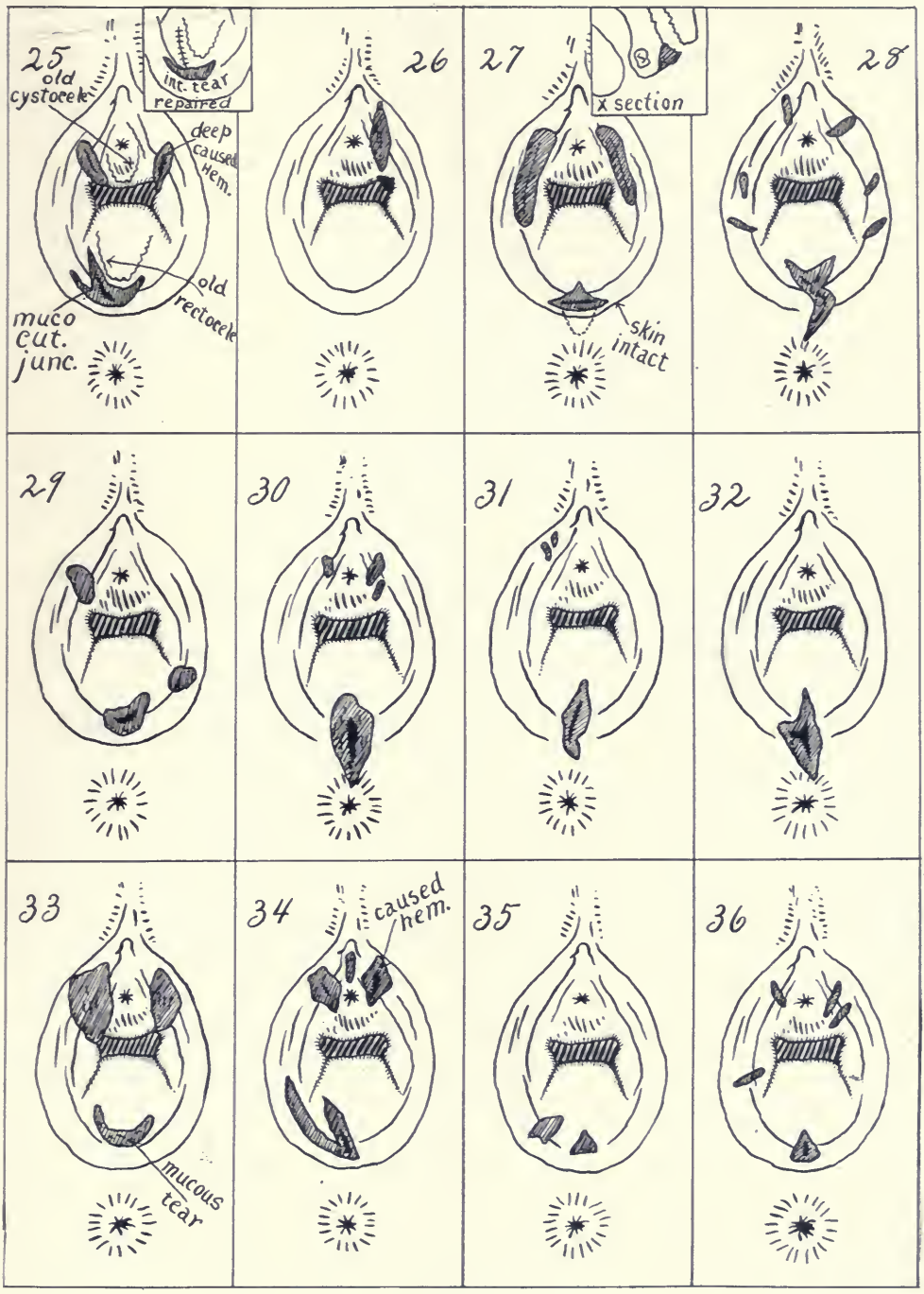

25
old cystocele
int. tear repaired
deep caused hem.
old rectocele
muco cut. junc.
26
27
X section
skin intact
28
29
30
31
32
33
mucous tear
34
caused hem.
35
36

FIG. 3.

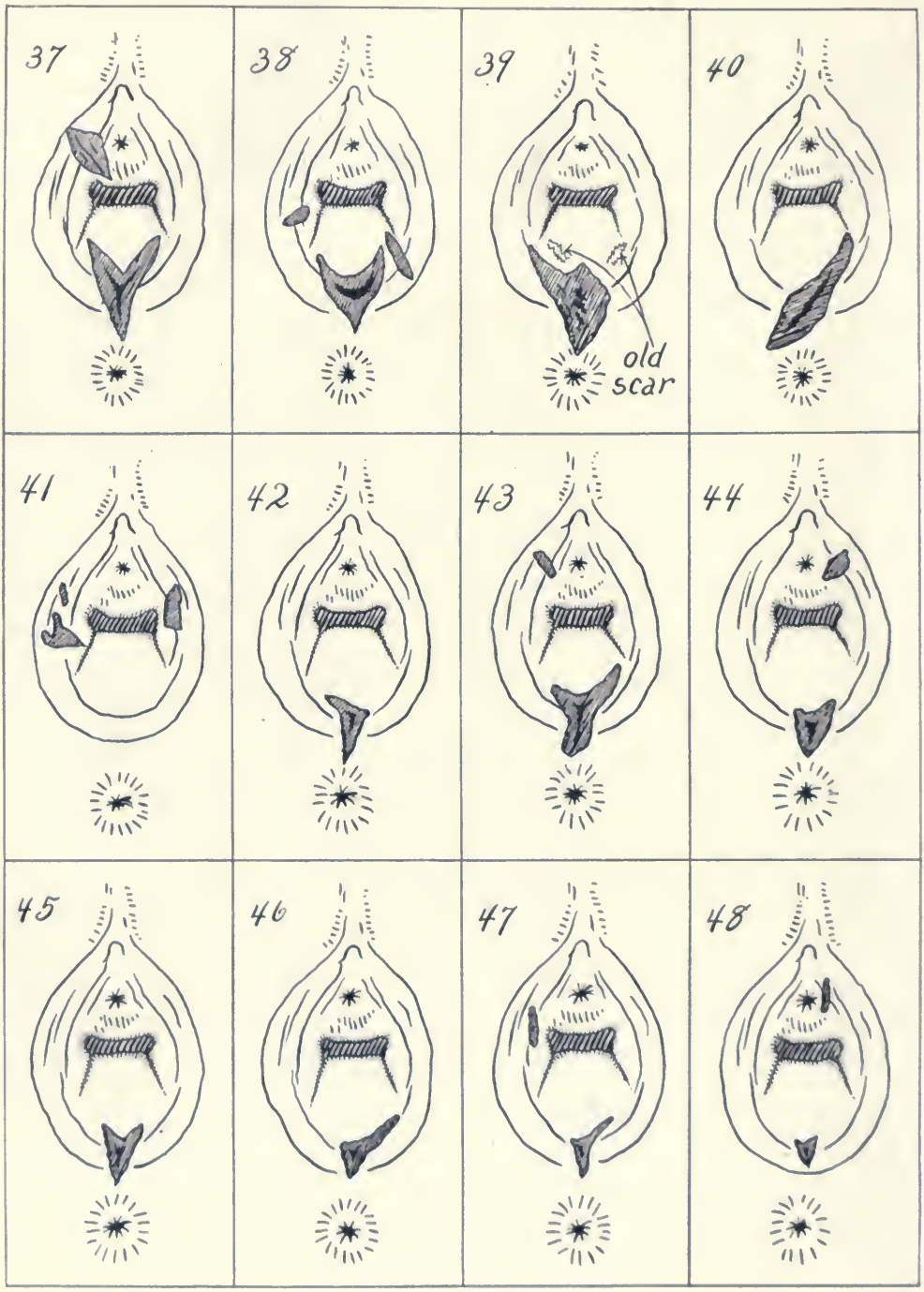


FIG. 4.

tion and caused delay, so that the safety of the child compelled extraction of the head very hurriedly. The head came through the pelvis so quickly that the extension of the face was not done. The chin caught against the perineum and caused a sphincter laceration. Both of these tears should have been prevented. Most sphincter lacerations are without excuse, and, with proper care, should not occur.

TABLE OF CASES.

No.	Para.	Pelvis.	Occ. Fr.	Weight.	Remarks.
1	I	Normal	12.75	3600	
2	I	"	12	3500	
3	I	"	11	3300	Precipitate. Age 39.
4	I	"	11.25	3400	
5	II	sl. contr.	11.5	2900	Scar of old operation caused rigidity.
6	III	" "	11.75	3900	
7	I	Normal	11.75	3450	Med. forceps. Muscle split begun by sharp edge of forceps.
8	II	"	12	3950	Old scar tissue.
9	I	Contracted	11.5	3050	High forceps; torn after removal.
10	I	"	11.75	4000	High forceps, dry labor.
11	I	"	11.25	2850	
12	I	Normal	11.25	3100	Low forceps.
13	I	"	11.25	3650	
14	I	"	10.50	2950	
15	I	"	11.25	3400	
16	I	sl. contr.	10.75	2800	
17	I	Normal	11.25	3600	
18	I	sl. contr.	11.50	3700	Tear increased by large shoulders.
19	I	Normal	11.75	3800	R. O. P. Head on perineum 1½ hours, tissues contused.
20	I	"	12	3750	
21	I	"	11.75	3600	Low forceps.
22	I	"	12	3500	
23	I	"	11.5	3025	
24	I	"	11	2950	Second degree. Skin intact.
25	II	"	10.75	3200	R. O. P. Head came down quickly when membranes ruptured.
26	I	"	11	3200	
27	I	"	10.5	3100	R. O. P. Second degree.
28	III	Contracted	12.25	3800	Med. forceps.
29	I	Normal	11.5	3650	Low forceps.
30	I	sl. contr.	10.75	3000	Low forceps. Head on perineum 1½ hours.
31	I	Normal	11.25	3500	
32	I	"	11.25	3300	Med. forceps. L. O. P. Caused by attempts at rotation.
33	I	"	11.25	3100	R. O. P. Low forceps. Age 44.
34	I	"	10.30	3500	Very rigid.
35	I	"	11	2650	
36	I	sl. contr.	10.75	2900	
37	II	Normal	11.5	3800	Med. forceps. Dry labor.
38	I	"	11	2650	Low forceps. Head on perineum 1½ hours.
39	II	"	11.50	3800	Low forceps. Old scar of previous repair.
40	I	"	11.25	3500	Med. forceps.
41	I	"	12	3300	
42	1	"	11.75	3200	
43	I	"	11.50	3400	Med. forceps.
44	I	"	11.50	3500	
45	I	sl. contr.	11.25	3400	
46	I	Normal	11.25	3000	
47	I	"	11	3000	
48	I	"	11.25	3200	

In consideration of these 48 cases, it will be seen that lacerations of the anterior portion of the perineal ring have occurred 32 times. These lacerations occurred in the region of the vestibule, through the labia minora and around the urethral orifice. They frequently caused hemorrhage. In one case (No. 14) the labium minus was torn completely through, as if cut with scissors. These anterior tears have but seldom been referred to save by Bar and Hirst and are of considerable importance, as they often bleed profusely. A death from hemorrhage from an anterior laceration has been referred to by Mathews Duncan.

A scrutiny of the more severe tears of this series will show that the lacerations are usually lateral. Those which occurred in the midline did not extend centrally up the vagina, but deviate to one or other side, or separate to form a Y. The only lacerations which extended centrally up the vagina were those in which the perineum was the seat of old scar tissue which altered the normal relation of the fibers.

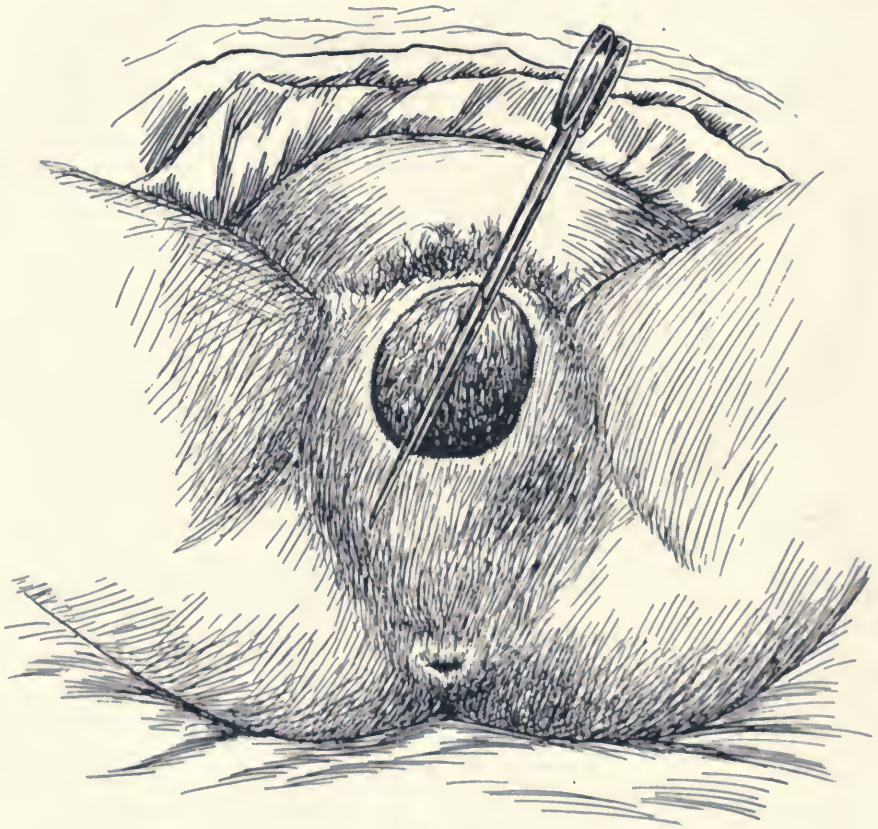


FIG. 5.

Thus it will be seen that any secondary operation which considers purely the middle line of the vagina does not attempt to repair the original trouble and is ineffectual in restoring the parts to their previous condition. The Emmet operation, as modified

by Noble, best completes the exact anatomic restoration for primary repair. It may be modified to suit any of the more severe lacerations shown in these pictures.

These lacerations were all repaired immediately after labor. The operation may be delayed 24 to 28 hours, if the woman's condition is poor, but should not be delayed longer, as the pyogenic organisms, constantly in the lochia, may cause infection of the wound. If it is necessary to delay longer, the laceration should be left for complete cicatrization, and a secondary operation done. The intermediate operation in the stage of granulation is one fraught with danger. Freshening the granulating surfaces of an infected wound of the perineum may cause a severe intoxication and open avenues of infection.

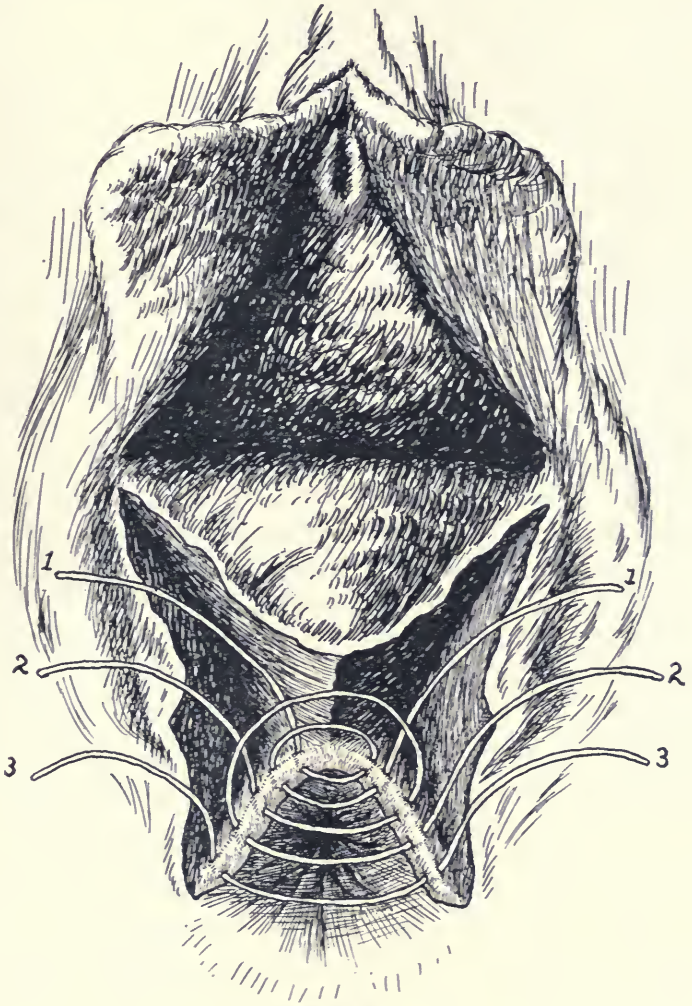


Fig. 6.

The technique of the operation for primary repair was as follows: First, if there was a sphincter tear, the rectum was sutured by a modified Lauenstein suture with fine chromic catgut and a small needle. These sutures pass in and out close to the margin of the gut upon the vaginal side without

penetrating the rectal mucosa. They are introduced in a figure-of-eight and tied not overtightly. The remainder of the operation, save for joining the sphincter ends, is the same as for a sphinter or major tear.

The mucous membrane is sutured with No. 2 chromic catgut, with a Kelly's needle. These needles should be rather heavy; a useful type, with a large (Lister's) eye in the side, is that sold by Codman and Shurtleff of Boston. The needle should be inserted 1 cm. from the edge of the mucous membrane and come out at the bottom of the laceration; be reinserted and emerge 1 cm. from the opposite edge (Fig. 7). Full bites of tissue should be taken. The sutures here are also passed as figure-of-eight. These double stitches save time, lessen the possibility of infection along the suture line and properly coaptate the parts. Care should be taken that the sutures completely close the sulci and do not connect them into closed gutters for the passage of discharges.

Twelve-day chromic gut is used and lasts in the vagina from six to ten days. Plain catgut is not of use in the soft succulent tissues of the postpartum passages, as it is absorbed too rapidly. No. 3 plain catgut lasts on an average three days under these conditions.

If the laceration is complete, the sphincter is now brought together by two sutures of No. 1 chromic catgut on a small needle. These sutures are buried (Fig. 8).

The next step in the operation is the closure of the external or skin surface of the laceration: this is done by silkworm or chromic gut sutures, with the Kelly needle. The sutures, as passed through one side of the wound, come out at the bottom and, if necessary, pick up any redundant tissue, and are reinserted to come out about 1 cm. from the skin surface. These sutures are drawn sufficiently tight to bring the edges of the wound firmly together. It usually requires from three to five of these sutures. None should be tied until all are in place, the effect of each suture upon the wound by crossing the ends of the suture being to pull the edges of the wound together. When all are inserted, these sutures are tied.

Attention is then directed to the mucocutaneous junction at the level of the hymen. Here two or three fine chromic sutures are usually required to effectually seal the wound.

The secret of success and primary union in this operation is to have no opening or gap in the line of the wound for the entrance of the lochial discharges which have been proved always to contain pyogenic organisms. These last chromic gut stitches effectually block a very commonly left gap which would permit the infiltrating discharge to obtain entrance to the lower part of the wound. These stitches correspond to the "crown-stitch" of Emmet's operation and restore the fascia in that plane as well as add to the cosmetic result.

The operation is done in three steps: 1. Suturing the mucous membrane; 2. Suturing the external tear; and 3. The "crown-stitches."

The anterior lacerations were all repaired with fine plain catgut. The tissues here are not so succulent, nor are they so exposed to discharges, as to require chromic gut. The difficulty in the repair of these anterior tears is to avoid puckering and to get a straight line of union. This is best done by beginning the continuous suture at one end of the tear and tying it. This tied end is used as a tractor and the suture continued as a "half-hitch" suture, i. e., after every bite of the needle the catgut is

passed underneath the last stitch, as the tops of flourbags or bales are sewn. The suture is thus continued to the end, leaving a straight wound.

All these cases healed up by primary intention. One, in which plain catgut was used had some separation and infection of the vaginal part of the wound. The sphincter tears, sutured by this method, and with fine chromic gut buried in the sphincter muscle, healed perfectly.

The aftercare consisted in keeping the women in bed for ten days. No douches were given, except on other indications. The silkworm gut sutures were removed in from ten to fourteen days, as the condition of the wound demanded. The women were often allowed up after ten days with the sutures in place, and about the house a day or so before their removal.

REFERENCES.

1. Gynaeciorum hoc est de Mulierum tum Aliis tum Gravidarum, etc. Basileae per T. Guarinum. 1566-257, chapter xx. Gynaeciorum sive de mulierum affectibus commentarii Graecorum, etc. Basileae 1586, vol. i, chapter xx, p. 105. Quoted by Kelly-Noble.
2. AMBROISE PARE. Opera Ambrosii Parei regis primarii et Pariensis chirurgi, etc. Parisiis. J. Dupuys, 1582. Liber xviii, chapter xxvii, p. 698. *Ibid.* "The Workes of that famous Chirurgien Ambroise Pare, translated out of the Latin and compared with the French by Th. Johnson," etc. London: R. Cates, 1649. Liber xxiv, chapter xxvii, p. 615. Quoted by Kelly-Noble.
3. GUILLEMAU, J. Les Oeuvres de Chirurgie, etc. Paris: N. Buon, 1612. Livre iii, chap. vii, p. 354. Quoted by Kelly-Noble.
4. DIEFFENBACH, J. F. Chirurgische Eriabrungen, 1829, bd. 1, p. 64. Sur la rupture de Perinee. *Jour. Complementaire au Dictionnaire de Science Medicale*, 1830, xxxviii, pp. 193-206. Ueber die Zerreissung des Dammes bei Frauen, *Medicinische Zeitung*, 1837, bd. vi, p. 255.
5. METTAUER, JOHN P. A Case of Laceration of the Perineum. *American Journal of the Medical Sciences*, 1833, vol. xiii, p. 113.
6. ROUX. Memoir sur la restauration du Perinee, etc. *Gazette Med. de Paris*, 1834. Tome ii, p. 17.
7. *Ibid.* Clinique chirurgicale. *L'Union Medicale*, 1849, vol. iii, p. 247.
8. BAYER, W. Cases of Ruptured Perineum treated successfully. *Edinb. Med. and Surg. Jour.*, 1823, vol. xix, pp. 551-554.
9. CHURCHILL, J. M. Case of Lacerated Perineum. *London Med. Repository*, 1824, vol. 1, pp. 464-468.
10. WILLIAMS, C. Case of Laceration of the Perineum. *London Med. and Physic. Jour.*, 1827, vol. iii, pp. 101-102.
11. ALCOCK, THOS. On the Treatment of Laceration of the Perineum in Parturition. *London Med. and Physic. Jour.*, 1820, vol. xliv, pp. 193-197.
13. FRICKE, J. C. G. Episorrhaphie ou nouvelle operation pour la cure de prolapsus de la matrice. *Gaz. Med.*, 1835. Tome iii, p. 249.
14. NICK. Beobachtung der vollkommenen Heilung einer noch ganz neuen Dammruptur. *Med. Correspondenzblatt des Wurttembergischen Aerztevereins*, Stuttgart, 1838, bd. viii, p. 301.
15. BROWN, I. Baker. Diseases of Women, 1854. On Rupture of the Perineum and its Treatment, etc., 1855.
16. SAVAGE, HENRY. The Surgery. Surgical Pathology and Surgical Anatomy of the Female Pelvic Organs, 1870. London, sec. ed.
17. EMMET, T. ADDIS. A Study of the Etiology of Perineal Laceration with a new method for its proper repair. Transact. Amer. Gynec. Soc., 1883, p. 198.
18. WILLIAMS, quoted by Hinchey. Surgery, Gynecology and Obstetrics, 1907, p. 155.
19. McDONALD, ELLICE. Mensuration of the Child in the Uterus with New Methods. *J. A. M. A.*, 1906, Dec. 15.
20. MACOMBER. *Medical Council*, 1899, Sept.
21. HARVEY DE LA MOTTE. Stein de signorum graviditatis oetimatia.
22. DUNCAN. *Am. de Gyn.*, 1876, Oct., p. 287.
23. MORKOWSKY. *Zentr. f. Gyn.* 1910, xxxiv, p. 28.

[*To be continued.*]

MEDICAL HINTS.

When strong solutions of silver nitrate are applied to the eye they should be neutralized by solution of sodium chloride.

Erysipelas causes an infiltration of the tissues which has a border line that can be distinctly felt by the fingers.—*Medical Summary.*

A RATIONAL TREATMENT OF CERTAIN SKIN LESIONS DUE TO FAULTY METABOLISM.

BY

ALBERT C. GEYSER, M. D.,
New York City.

Professor of Physiological Therapy at Fordham University Med. College; late Lecturer in Electro Therapy at the N. Y. Polyclinic School and Hospital; Instructor in Electro Therapy and Radiography at Cornell University Med. College; Consultant to the Nazareth Trade School and Hospital, Farmingdale, L. I.

Introduction.—Before undertaking treatment of any kind, our first thought ought to be "The removal of the cause." If for any reason the cause cannot be discovered or cannot be removed then the cause must be made inoperative or else our best efforts are going to be fruitless.

The lesions, which we are about to consider, are due to some fault with the metabolic process. For our purpose it is not really necessary to go into the details of this much unexplored field of metabolism. We must, however, have in mind the fact that the fault may be due to some error in either anabolism or catabolism. It is plain that if the particular skin lesion is the result of anabolism and we direct our efforts to the catabolic process, failure will be the result. It is equally clear that if the lesion is the result of either the anabolic or catabolic process, then local therapeutics can at best be only palliative and not curative.

Under the term anabolism we mean the construction process which goes on in the body as the result of the intake of food stuffs and their absorption and especially assimilation. From this process not only results the normal tissue growth and cell increase, but the repair of injured cells and tissue as well. Without anabolism we could have neither maintenance, growth nor repair. This being so, we at once realize that the food used for the anabolic process is of the utmost importance to the economy. Improper food or improperly digested food can only result in improper anabolism, which in turn, must have its effect upon such structures as ultimately depend upon proper metabolism. An example of faulty anabolism in dermatology is seen in urticaria, psoriasis, dermatitis medicamentosa, etc.. Something has entered the general blood stream either by the way of the stomach or the intestines that in this particular case is inimical to the general well being of the individual. Treatment therefore, unless directed toward the anabolic process must eventually be a failure. Important as anabolism may be, the process of catabolism is only more so.

We are well aware of the fact that whatever enters the human body must again leave it, unless accounted for in tissue formation or repair, in energy used or stored for future use. All else is foreign to the economy and must again leave it. Food material once having entered the body must, if the normal process is maintained, be reduced to urea and CO_2 if it leaves the body by any other route than the gastro-intestinal tract. Unless such complete reduction does take place, then the attempt to rid the body of such improperly oxydized substances results in irritation at the various points of outlet. Eczema in its various types is the result of such an attempt upon the part of the system to rid itself of toxic material by the way of the skin. The improper reduction of the contents of the intestines is not the only cause of skin lesions. Decomposition and fer-

mentation are perhaps directly responsible for the greater number of such diseases as are recognized as being of gastro-intestinal origin. Without the removal of gastro-intestinal toxemia in the various skin lesions, improvement can hardly be looked for. On the contrary a simple folliculitis or ulcer in a diabetic patient is seldom amenable to therapeutic measures unless the metabolic process is first made normal. Aside from the intestinal tract there remains the destructive metamorphosis of the entire economy, there is continuously going on as the result of the general wear and tear a physiologic disintegration. This dissimilation causes the formation of certain substances, which, if they are not promptly eliminated from the system undergo similar changes to the ones that occur in the decomposition of animal food taken into the gastro-intestinal tract. Whenever we are dealing with a skin lesion in a patient whose urine contains indican little can be accomplished until that patient's urine is free from indican. It matters not whether the animal food taken is decomposed and so forms toxic matter or whether there is in the system an inflammatory lesion with pus production or the mere retention of physiologic disintegration of animal substances in each case there are certain skin lesions as the result of toxemia. Acne and furunculosis is a common result of toxemia. Erythema multiforme and induratum seldom can be cured unless the intestinal tract is made normal and the process of elimination functionates physiologically. If we peruse our external agents used in the treatment of dermatological lesions, we find that they may be placed in one of two classes. Either, they are a stimulant or a sedative. If the lesion appears active, inflammatory, spreading, burning, itching, or painful we use some means best calculated to allay the local hyperexcitability of the parts; in other words we make use of a sedative line of treatment. Our object is to place the local area in such an environment that will cause the individual cells to be less influenced either by the distributing element from within or some infection from without. If, on the other hand the lesion appears sluggish, with no attempt at reaction, with a tendency to chronicity then a stimulating agent is of necessity indicated. Anything from the mildest stimulation to irritation is indicated. The point of stimulation may be carried so far that by over stimulation, actual destruction or death of the part may result. Do what we may and vary our external applications ever so ingeniously we are either using an agent that stimulates or sedates the local area. It may so happen that either the stimulant or the sedative may be an antiseptic, a germicide or antipruritic. If two or more suitable qualities are inherent in one and the same agent, so much the better. The fact remains though, that the lesion cannot be permanently cured if due to faulty metabolism. It is equally true, though, that the lesions may be cured by the vis medicatrix naturae, if absolutely nothing is done excepting to correct and insure a normal physiologic metabolic process. Remove the cause and cure results. There is no denying that external medication will materially shorten the time if combined with the appropriate constitutional treatment. We will now consider a few of such lesions individually giving the points of diagnosis, pathology and treatment.

SPECIAL AFFECTIONS:

Urticaria.—Appears suddenly in those predisposed. Children are slightly more

liable to attacks. The lesion is known as the "wheal," a slightly raised sharply circumscribed, edematous flat lesion. The wheal varies in size from that of a pin head to the palm of the hand. No part of the body is free from attack, but the parts subjected to irritation and friction are more liable. The lesion is of a pale pink color except at the margin where there is a rosy areola. The crops are usually accompanied by itching and burning. They disappear in a few hours only to reappear again. Scratching usually produces larger and a greater number of wheals. Every scratch mark especially if purposely made with the finger nail or other sharp instrument is at once followed by an edematous lesion corresponding to the marking, hence the name dermographia. Sometimes the disease has a tendency to become chronic, lasting weeks and months. Only two reasons can be assigned for this lesion, either a neurotic or metabolic instability. As all neurotic instabilities are directly traceable to some metabolic irregularity our main attention may be given to the latter. Certain articles of diet seem to be the direct cause in some patients, among them are strawberries, cucumbers, clams, oysters, lobsters, fish, pork, cheese, oatmeal and pastries.

Treatment.—If the particular food for which evidently a certain idiosyncrasy exists is known, it may be simple to discontinue such food and cure is the result.

For the local or external treatment there is nothing more efficacious than the brush discharge from the positive side of the static machine. One single application relieves the itching at once and the relief will last for days.

For the systemic treatment, there is nothing better than a brisk cathartic, my preference is castor oil if the patient can take it, if not, use one grain of phenolphthalein every three hours during the day for two or three days according to results. During this time there should be abstention from all food excepting soured milk or buttermilk. After the third day coarse bread, fruit and vegetables are permissible. Preceding or following each meal the patient should take one or even two doses of a solution of lactic acid bacilli. A man going to business *may* use compressed tablets of the Bulgarian lactic acid bacilli which are more convenient and *perhaps* as efficacious. In children under the school age, such treatment is not practicable. The most important points, however, may be summed up as follows: relieve the itching either with static spray or with a one per cent. carbolic acid solution, reduce the food intake to a minimum, give lactic bacillus liquid a dose three times daily, keep bowels open with castor oil or phenolphthalein, gr. ½, every four hours during the day.

Psoriasis.—*Diagnosis:* The lesions appear at first as small hyperemic points which soon become covered with the characteristic silver-grey, greasy scale. These scales may be so fine and few that they escape observation unless raised by scratching with the finger nail, P. punctata, or may be so profuse as to be heaped up, giving the appearance of splashes of mortar upon the sound skin, P. guttata. Frequently the lesions form round raised patches with the sound skin intervening, P. nummularis. In very marked cases these patches coalesce and affect large surfaces, in fact the entire body may be covered with one large patch,

P. inveterata. When any of the scales are forcibly removed a number of small pin point sized bleeding papillea are seen. During the active stage a rose or red colored margin one-quarter to one-half of an inch wide surrounds the scaly area, while during the quiescent stage the line of demarcation is sharp, ending and beginning with the scales and the sound skin. Points of predilection are in the order named, points of elbow, front of knee, scalp, back and less often all other parts of the body. Subjective symptoms are seldom very pronounced, there is little or no itching or discomfort of any kind. On the contrary, the patients usually have the appearance of being in the best of health. A parasite of psoriasis has never been demonstrated, but contagion seems to have produced the disease in others. While antiparasitic medication seems to assist in eradicating the lesions, it must be borne in mind that all antiparasitic medication possesses stimulating qualities which may account for all the good they have seemed to do. The fact that nearly all psoriatics seem to be in otherwise good health raises the question, "Is it not possible that some toxic material which is being eliminated by the skin affects certain locations where there may be a lowered cellular resistance, as the points of the elbows, or the front of the knees?" There is hardly any other part of the body where the skin undergoes so much stretching, contraction and friction as these points of psoriatic predilection. Again it has been noticed that when the patient for any reason fails in his general health, the psoriatic lesions improve correspondingly. In other words this might be construed that other organs were taking up some of the toxic material thereby lessening the effect upon the existing lesions. Were these lesions the result of microbic invasion, the lesions under a depressed general health ought to increase and become more numerous. Another point of interest is the fact that when the patient is put upon a strictly vegetable and fruit diet, the lesions not only disappear but the patient remains free from them as long as the strict diet is maintained and no longer.

Treatment.—Clear the digestive tract by brisk catharsis, phenolpthalein given in 2-3 grain doses, mornings and evenings, cause less disturbance during the daytime, especially is this worthy of consideration, when we remember that psoriasis is more prevalent during youth and middle age and slightly more so in the males than females. All animal food must be interdicted, including eggs and milk. The decomposition of animal food in the intestines produces various toxines which seem to be responsible for the lesion. The intestinal tract must be made and kept as nearly in an aseptic condition as possible. All intestinal antiseptics are a delusion and a snare. The only safe and scientific manner of ridding the gastro-intestinal tract of noxious germs is by causing the contents of the bowels to change from an alkaline to an acid medium. The germs of putrefaction can not thrive in an acid medium. *Lactic acid is the media best calculated to serve this purpose. This acid must not be administered by mouth for it would soon be acted upon and with the rest of the intestinal contents be either neutralized or become alkaline. The lactic acid must be formed directly within the intestines from the intestinal contents. The lactic acid bacillus or bacillus bulgaricus must be administered in large doses before or after eating three times daily for at least a period of three to four months.* The local treatment depends as to whether the

lesion is in an hyperemic and active state or in a stationary and chronic state. If active, then some sedative measure is indicated. A tepid bath with five to six ounces of sodium bicarbonate in the bath is very grateful and has a tendency to soften and loosen any hard scales. Sooner or later all scales must be removed from each patch separately. Immediately following the alkaline bath the parts may be treated to an inunction of oil. It makes very little difference what kind of an oil is used, its only function is to soften the scales. As each patch, however, may harbor certain germs, it is well to add to the oil some oleate of mercury, making strength of about 20% of oleate of mercury to 80% of some bland oil like liquid vaseline. Unguentum salicylicum 2% is very effectual. When the scales have been cleared off, the base of the disease must be treated. If hyperemia is still marked a soothing dressing like lotio calamine is indicated for a few days. As soon as the toxic material leaves the general circulation the hyperemia becomes correspondingly lessened. The most efficient of all external applications after the lesion has been properly prepared is without exception chrysarobin. This ointment in the strength of about five to twenty-five grains to each ounce of vaseline, is applied to the lesions only, avoiding the sound skin as much as possible. The parts so treated must be well protected from coming into contact with the clothing as the stains of this cannot be removed from the clothing and only with some difficulty from the skin. When the lesions have entirely healed the stain gradually disappears. This drug must not be used during the hyperemic state as it acts by its irritating qualities as an intense stimulant to even the healthy skin.

Psoriasis, no matter where located or how small the lesion may be, has a tendency to chronicity and relapses.

Acne or Comedones and Acne Indurata.—These two affections will be considered simultaneously. Acne is characterized by an eruption of papules, tubercles, and small and large pustules of a dark red or bright color. They appear most frequently upon a seborrhoic or oily skin, especially upon the face and forehead during early puberty. In especially susceptible individuals these lesions may appear upon the back and chest. Usually all the various stages of the lesions are present at the same time. When the ordinary lesions of acne are more deep seated or have become infected the area surrounding the sebaceous follicle becomes congested and a hard, deep seated painful nodule is formed, which either breaks down and discharges a small amount of pus, sebacious material and blood, or else undergoes a gradual absorption and disappears like the preceding lesions, this is primarily a constitutional dyscrasia of gastro-intestinal origin.

Treatment.—The bowels must be emptied and kept so for a time at least. As this disease usually occurs in young robust individuals, phenolphthalein, one grain three times a day for a few days or a solution of Rochelle salts repeated once daily is indicated. The mere emptying of the bowel, while serving a good purpose, is merely an incident. The real effect desired is that the blood stream be changed and that a flow from the periphery to the centre is established, so that instead of absorption from the intestines there is a return from the general circulation to and into the intestines. The diet is of course reduced to the simplest, coarse bread containing bran, vegetables and raw fruit and

very little fluids. *The prevention of intestinal decomposition and fermentation is essential.* Each night the patient must take a hot bath, hot enough to cause the perspiration to run down the face. A shower or cool sponging should follow the hot immersion bath. Rubbing the entire body with a coarse Turkish towel finishes the constitutional treatment. Fresh air, especially in the bedroom at night is indispensable.

Local Treatment.—The parts must be thoroughly cleansed with tincture of green soap, then the soap removed by washing first in very hot, then very cold water. Some few minutes can be judiciously spent each night and morning in this cleansing process. Several changes of hot and cold water are necessary. When the parts have been properly cleansed, bathe for a few minutes and allow to dry upon the parts a solution of hydrarg. corrosivum (1-2000). One of the principal points in the local treatment is to guard against reinfection. Whatever the nature of the germ may be there is no doubt that reinfection is very common, either through the clothing worn or the bed clothing, towels and pillows at the home of the patient. Such patients frequently clear up all the lesions while away upon a visit, only to break out again upon their return. Serum injections have given some very good results in well selected cases, autogenous vaccines seem theoretically as well as practically indicated. When the sebaceous glands seem particularly active, the use of the X-ray has given very satisfactory results, but it does not seem that an agent as dangerous as the X-ray is ever indicated in acne. It would seem to me an agent of last resort and then it ought not to be used. Individual lesions, if suppuration has taken place, must be opened, evacuated and treated as any other septic local area.

Rosacea.—In the beginning this lesion manifests itself as a simple localized hyperemia of the nose and the cheeks. This oft repeated hyperemia directly or indirectly leads to a paralysis of the capillaries with the result of blood stasis. Later the smaller blood vessels become engorged and remain so permanently. In addition to this we may have an acne indurata engrafted upon the lesion and we have a typical picture of rosacea chronica. The lesion is slightly more common in women than in men. Evidently the disease is a circulatory neurosis due to some reflex disturbance most frequently of gastro-intesinal origin.

Treatment.—The diet of the particular patient must be inquired into. Excesses of any kind discovered and interdicted. A complete change of diet regardless as to what it is, has often cured the lesion. Autointoxication must be prevented. Ichthyol given in gradually increasing doses from five to fifteen grains once or twice per day has given good results. Better still the bacillus bulgaricus administered fifteen minutes before eating assures success.

Local Treatment.—If acne lesions are present they may be looked upon as infection from the outside in a region that has become susceptible or at least possesses a lowered resistance. The usual cleanliness and antiseptic treatment laid down for acne is indicated here. When the larger vessels have become dilated, their lumen must be destroyed. Electrolysis works promptly and efficiently. The negative needle with the galvanic current of about 2 to 3 milliamperes is introduced within the

lumen of the vessel for one-half of an inch or more. The positive pad electrode may be placed at any convenient location as upper arm or shoulder of the patient. The current must be started at zero and allowed to flow until the frothing at the needle indicates that decomposition has taken place. The current is again reduced to zero before withdrawing the needle. Five or six vessels may be destroyed at one sitting.

Baldness or the Loss of Hair.—Why man should lose his hair even with advancing age has never been satisfactorily explained. To say that baldness is the result of old age is not a scientific explanation. There is no reason why, physiologically, man should not retain the hairs upon his head even at advanced age the same as he does the beard upon his face. Besides diseases of the scalp and hair, there is what has been termed "premature baldness." Young men and women too, at the age of twenty or thirty begin to lose their hair. It cannot be said that this is due to old age, neither do we see any other good and sufficient reason for the same. The scalp and hairs show not the slightest sign of disease, yet the hairs fall out. Another interesting feature is the fact that only the top or the crown of the head is so affected. When the hairs have fallen out, a new crop usually grows, but this second and even third crop attains no size and seems to die off before it gets well started. After one or two such futile attempts at regrowth, permanent baldness is established. We know that certain diseases are followed by a loss of hair and regrowth of the same as soon as complete recovery has taken place. In such cases a toxic material in the blood would account for the loss of hair. Fright, worry, shock and emotion have caused the sudden loss of hair. We know that such psychic conditions leave toxic materials in the blood, hence the possibility of the denutrition of the hairs, at least for the time being. Whenever a person has passed through a severe illness of any kind the fingernails become brittle and have a tendency to dry up and crack. When recovery takes place a sharp line of demarcation is seen across the fingernails, showing that the nails are again being supplied with their normal nutrient material. Again a toxemia has affected the nutrition of the dermal appendage. *Reasoning from the above would it be too much to claim that "premature baldness" might be due to toxemia of intestinal origin?* If we examine the scalp of such patients we find as a rule a thin, closely adhering scalp. In fact the top of the head presents the only surface where the skin lies so closely to the bone over such an extended area. When therefore in a normally, with blood poorly supplied area, we add a toxemia, the result of anabolism or catabolism we ought to find an easy explanation of the loss of hair in such a locality.

The application of proper therapeutics seems to bear out this hypothesis.

Treatment.—As hair is almost entirely composed of proteid material, we must supply the economy with at least sufficient of such proteid matter. In practice the best results are obtained from such leguminous substances as beans, peas and lentils, bread made from whole wheat and rye flour. Such a diet is the mainstay of the German army and baldness in the army is practically unknown. The gastro-intestinal tract must be kept normal, constipation overcome or prevented. *Decomposition and fermenta-*

tion the result of the colon and other bacilli must be fought with their natural enemy, the bacillus bulgaricus.

Local Treatment.—The scalp must be raised from the skull by the application of vacuum cups every other day for a few minutes. The vacuum treatment as laid out by Bier causes an active hyperemia and a dilatation of the blood vessels, especially the capillaries. Look out for paralysis of blood vessels. For a few minutes dry heat from a fifty candle power incandescent light is then applied. This superficial heat enhances the hyperemic effect of the cupping. When the scalp is thus softened, loosened and heated the high frequency discharge from a vacuum glass electrode is applied; this discharge is a stimulant to the performance of physiological function, which in this case is the regrowth of hair upon the scalp. The results during the past three years have been more than satisfactory.

All these enumerated lesions are depending almost exclusively upon some perversion of the metabolic functions of the system. Either there is an intake of improper food or insufficient elimination of noxious materials formed within the gastro-intestinal tract. A word regarding the prevention of decomposition and putrefaction in the intestines. Professor Metchnikoff of the Pasteur Institute of Paris, showed conclusively that all intestinal so-called antiseptics were a myth. At the same time he demonstrated that when the bacillus bulgaricus was administered in sufficiently large dosage, enough lactic acid would be formed from the intestinal medium in the intestinal tract, that the colon bacillus and all other germs, requiring an alkaline media, could not multiply nor even maintain themselves. Our own clinical experience has convinced us over and over of the futility of treating such lesions merely locally. Equally well are we convinced that intestinal cleanliness is at the root of all recoveries. That coffee colored muddy complexion without any apparent lesion clears up in a very few weeks after the decomposition in the intestines ceases. In all patients who have that "cachectic" appearance examine the urine. If indican is present there is animal decomposition. Such a complexion cannot be made clear unless the intestinal absorption is physiologic instead of pathologic.

231 W. 96th Street.

SCIENTIFIC DISINFECTION.

An Essential Precaution After Infectious Disease.

BY

J. T. AINSLIE WALKER,

Fellow of the Royal Society of Medicine, Fellow of the Chemical Society, etc., New York City.

In the *Medical Review of Reviews* for October, Dr. William Brady in an article pleading for what he terms medical asepsis declares that disinfection of rooms after infectious disease is unnecessary, basing his argument on the assertion that the theory of indirect infection through the medium of the atmosphere has been abandoned. This, however, is an over statement, for though our views on air-borne infection have been modified in accordance with the teachings of modern science, and no one now believes that disease is spread through some mysterious property of the air, we do know that, as explained by Tyndall years ago in his raft theory, it it conveyed by germs floating in the air on particles of dust. In a recent investigation reported in the *Journal of Public Health,* Prof. Winslow,

working with an average of 19 samples of school-room dust, obtained 22,700 acid-forming streptococci per gram.

In support of his contention Dr. Brady quotes an experiment on return cases of diphtheria and scarlet fever, carried out by Dr. Chas. V. Chapin of Providence, R. I. An editorial in a recent number of the *Medical Review of Reviews* refers to this experiment in the following terms: "We hope there are not many health officers who are as courageous as the one in Providence, and who will take the chances which he seems to have taken. We are not convinced by his figures. Perhaps he will tell us that rooms in tenement houses which have been occupied by the tuberculous are also innocuous and do not require disinfection."

This is just what Dr. Chapin does, contending that "in case of consumption the proper disinfection is to have cleanliness all through the disease, but if people are careless, the final disinfection of the house is of little importance." In Dr. Chapin's opinion "tuberculosis germs cannot live outside of the body."

If this were true, the eradication of the disease would be a short and simple matter. Tuberculous sputum would cease to be an object of dread, and the consumptive would expectorate freely without the slightest danger of infecting others; it would only be necessary to avoid the inhalation of germs as transmitted direct from the mouth. It is, however, a well recognized fact that under favorable conditions the germs remain active and claim fresh victims for an unknown length of time. Dr. Thomas Spees Carrington, Assistant Secretary to the National Association for the Study and Prevention of Tuberculosis, writing in the April issue of the *Journal of the Outdoor Life*, says: "The germs from sputum have been found alive and able to produce tuberculosis in animals *two and a half months* after they were deposited on handkerchiefs, blankets, *and the floors of dwellings.*"

Sir Arthur Newsholme, Medical Officer to the British Local Government Board, and one of the most eminent English authorities on tuberculosis, says in a memorandum issued by his board, when referring to the infectious material discharged as expectoration or as cough spray, *"it may be infectious during months or even years."*

The Scotch Local Government Board in an official circular says: "The coughed up matter spat out may retain its capacity to produce the disease after *days, weeks or even months."*

Let us consider for a moment how consumption is spread. Most of us are aware that the germs of the disease are to be found in enormous numbers in the sputum of persons affected with phthisis, i. e., consumption of the lungs; Cornet, the French scientist, has estimated that a phthisical patient may cough up 7,000,000,000 germs a day. By a careful disposal of the sputum, the risk of infection may be greatly diminished, but apart from the fact that the sputum is not always carefully disposed of, an infected person cannot avoid diffusing germs through coughing, sneezing and even ordinary talking; unless destroyed by disinfection, these germs must accumulate on the floor, walls and furniture of the room. From these, when disturbed by draughts, sweeping, etc., they are conveyed on particles of dust into the atmosphere and inhaled by occupants of the room. This is one of the principal methods of transmitting infection; in the words of Koch, the discoverer of the tubercle bacillus, "it is

usually concluded that the germs of the disease must have got into the lungs by inhalation."

What may be termed "house infection" in consumption, is now well recognized by sanitarians and there are numerous authenticated instances of the occurrence of case after case of the disease among successive occupants of the same house. The following striking instance is taken from a Bulletin of the State Board of Health of Maine:

"Many times has it been observed that after pulmonary tuberculosis has once been introduced into a house death follows death, for years thereafter, the fatalities extending, it may be, to several families who successively occupy that house, and it appears to make but little difference whether there is or is not a previous family history of consumption in those families. The explanation of these successive tragedies is simply that due precautions against the transmission of infection from person to person have not been observed, *or that infected rooms and things have been left without disinfection.*"

The report states that seven deaths from consumption occurred in two different families who subsequently occupied the house in question. It was then suspected that the house itself might be the cause of infection, and accordingly the paper was torn from the walls and the house thoroughly disinfected, after which no further cases of the disease had developed up to the time of writing.

Just about a year ago Dr. Samuel G. Dixon, Health Commissioner of Pennsylvania, wrote:—

"Within sight of the Capitol of Harrisburg there stands a house responsible for the death of eight people. The neighbors do not point to it as they pass and there is no tale of haunting spirits connected with it, yet eight people, father, mother, five sons and a grandchild have been its victims. 'Consumption inherited,' said the neighbors and friends of the unfortunate family. 'Yes, tuberculosis,' said the experts of the State Department of Health, 'but not inherited—transmitted, owing to the lack of proper disinfection and sanitation!'"

In the January number of the *American Journal of Public Health,* Dr. Frank A. Craig claims that "house infection is one of the most fruitful sources of infection." He found that 24% of all deaths in the 5th ward of Philadelphia during a period of seven years occurred in houses in which a previous death from tuberculosis had occurred, and that out of 2,248 deaths in 47 years in that ward, 353 or 15.7% occurred within a period of four years following a previous death in the same house. From this he concludes that "15.7% of all deaths in 47 years were due to house infection." Dr. Thomas Spees Carrington, in the article referred to above, says: "If every precaution is not taken the house generally becomes infected with the germs and thus endangers the health of the entire family." The Scotch Local Government Board, in the memorandum already alluded to, states "it has been clearly shown that cases of pulmonary tuberculosis have originated from rooms previously occupied by phthisical patients. This is now known to be one of the commonest sources of infection."

The imperative need for the disinfection of houses on the death or removal of a consumptive has been insisted upon over and over again. The final report of The British Departmental Committee on Tuberculosis contains the following:—"The committee think it most desirable to secure the systematic and thorough disinfection of

premises which, there is reason to believe, harbor tubercle bacilli. . . . . They think it well to emphasize the importance of this work as a factor which will lead to the diminution of risk of infection.

Steps should be taken to ensure that all houses, in which it is known that persons suffering from tuberculosis live, should be thoroughly disinfected at frequent and regular intervals. It is only by these means that the danger arising from desiccated tuberculous expectoration can be reduced to a minimum."

Dr. Samuel Dixon, in a note of warning to those about to "move," asks the following very pertinent questions:—

"Thousands of people in the various communities throughout the state will change their place of abode on this day. Are you one of these? If so, did you give proper consideration to the previous history of the new home? Did you ask whether the previous occupants of the house had suffered from contagious disease? Did you insist upon knowing whether there had been proper disinfection of the premises, in case there was anything of this nature?"

Dr. Joseph S. Neff, Director of Public Health, Philadelphia, in a similar manifesto, points out that "when disinfection has been properly done, any house which has been the scene of a contagious or infectious disease will be perfectly safe to live in. Therefore, disinfection is the only safe plan."

The British Local Government Board in a memorandum on tuberculosis says: "Disinfection should always be carried out when the patient changes his address." The Scotch Local Government Board goes even further:—"When persons suffering from phthisis are treated in their own homes, the local authorities should see that disinfection is carried out at frequent intervals. Not only the homes, but also the workshop and other places where consumptives have been employed, should be carefully and thoroughly disinfected."

And finally, Surgeon-General Sternberg, the eminent bacteriologist, is responsible for the axiom that "every effort should be made to destroy the bacillus wherever it may be found."

From the foregoing the reader will be able to judge for himself whether or not disinfection be necessary after tuberculosis. On the one hand Dr. Brady and Dr. Chapin say it is not, the latter going so far as to assert that the germs cannot live outside the human body; on the other, many of the highest authorities, American and foreign, declare that the germ may remain active outside the human body for months, even years, adduce evidence to show that the disease may be transmitted through the habitation of houses infected with the germs left behind by former tenants, and urge in the most unequivocal language the disinfection of all such houses.

That certain bactericides are capable of killing tubercle bacilli is, of course, a demonstrable fact; but it would be a mistake to suppose that all such preparations offered to the public possess this power. Fumigation with formaldehyde, for instance, though very commonly employed, is at the best an inefficient method of house disinfection, and quite useless in cases of tuberculosis. An editorial in the *New York Medical Journal* of October 19th, last, points out very clearly that without exactly the right proportion of steam in the room under treatment, formaldehyde fumigation is absolutely unreliable, adding in reference to the difficulty of introducing the exact proportion of steam:—"Compare with this the ease and accuracy with which a standardized disinfectant can

be prepared and applied in the form of a fine spray." The latter is the only really reliable method of house disinfection, and should never be omitted after consumption or, indeed, after any infectious disease.

THE ANNOTATOR.

Expert Examinations Again Criticised.—Ex-President Taft is losing faith in expert medical examinations according to press reports of a speech he made to the students of Hill School in Pottstown, Pennsylvania, Nov. 15. He said:

"I had two cases once before me in which it was represented that both the convicts were near death. I instituted an investigation to find out the truth through the Army Medical Corps. Examinations were made, watches were established over the sick men, and it was reported to me that they were both in the last stages of a fatal disease. One of them died soon after he was released from the penitentiary. The other is apparently in excellent health and seeking to reestablish himself in the world in which he committed a penitentiary offense. This shakes one's faith in expert examinations."

He evidently referred to Charles W. Morse who is now a strenuous business man again, though he was seriously sick in prison before his pardon Jan. 18, 1912. The other case was probably John R. Walsh, the Chicago banker who died Oct. 23, 1911, nine days after his pardon. It is difficult to see why Mr. Taft's faith in expert examinations was not strengthened by the accurate predictions in the Walsh case. Perhaps the army medical officers who examined Morse could satisfactorily explain why they thought he would soon die in prison and why they thought he would improve if released. It is unjust to blame them for incompetency until we learn whether or not Morse has really recovered. The pathology of these two cases is of sufficient public importance to warrant publication of all the facts. Until then, Mr. Taft's unfair fling at all medical examinations should be resented. We enjoy spanking expert witnesses, but do not like to see any one outside the family do it. Mr. Taft was the worst beaten candidate for reelection in the history of the republic and many think he was the most incompetent President we ever had. He seems to be defending his acts by the old trick of blaming others. He has blamed Congress for not increasing the army, whereas he himself was notoriously opposed to the increase and actually decreased the force as much as the law allowed. He cannot be taken seriously in his attack on medical men.

A Large Brain.—Prince Katsura's big brain is occasioning a great deal of comment although there are thousands of unknown Japanese with brains just as big if not bigger. As long ago as 1903, statistics of Japanese brain weights were published in the *Sei-I-Kwan Medical Journal* of Tokio by the anatomist Taguchi, and it was found that while the vast majority were near an average which was less than the average German brain, the extreme variations on each side were not quite as numerous as in peoples who had been under civilized influences longer. That is, in a savage state where all men have the same employment the brains vary but little from the average, but with the growth of a complex civilization, men who would perish in savage life can find some way of making a living. Anthropologists have long known of the law of the increasing variation of brain weights. The Japanese have not been under this selection as long as other races and consequently do not have as many big brains as Germans, say, and the small sizes are more numerous and more diminutive. The size of the brain, by-the-way, gives no indication of the kind of mind, although great men as a rule do have bigger brains than the obscure. Prince Katsura's brain therefore is not an indication of Japanese national intelligence, as he is merely one of the variants of a rather low average. It no doubt accounts for his great ability, though other men with big ones have not done anything remarkable. We must make allowance for the fact that it was weighed in the fresh wet state and when dehydrated it will approach the weight of many another great man's which has been weighed only after preservation in alcohol or merely calculated from the skull capacity. Still, Spitzka puts it 16 in his list of 108 eminent men, and it might go

much lower if we knew more of the brains of the great.

Mercury Poisoning.—Cases of mercury bichloride poisoning continue to shock the community, some being obviously due to accident, some to the strange and fatal influence of example, as in the instance of the two men who took thirty grains each of the salt when "daring" each other in a drunken bout. Even this last case might have been prevented were there some strict law about handling such drugs. Of the various methods suggested of safeguarding the public, two appear to us to have special merit. One is the installation in the household medicine cabinet of an automatic electric lighting apparatus which will give a brilliant illumination of the interior the instant the doors are opened. The other suggestion concerns the shape to be given to compressed poisons. We think that for deadly poisons the lozenge form might well be abandoned in favor of the pencil or crayon shape. A crayon, say, one inch in length and of the necessary diameter, with blunt ends, would not suggest in the least internal administration, and the most absent minded of self dosers could not be deceived or led to a fatal catastrophe by a series of automatic nerve impulses or reflexes. Irregularly shaped lozenges will be subject to breakage or attrition with the loss of their distinctive shape, a defect impossible to our crayon. We do not see that there is any necessity for the manufacturers to await legislation on this important matter; let them "have a heart" to use a happy bit of popular slang and do at once what they can to save the foolish and the weak.

Anatomical Evidence in a Divorce Case.—Evidence of prime importance was recently offered in a divorce case in one of the states, which some hundreds of years ago would have been presented, if at all, by a jury of matrons, but which at this date must come from the physician or nobody. In this case the divorce had been granted to a wife, an unmarried woman having been cited as co-respondent, and the case was reopened on the plea of the lawyers for the defence that new evidence had been discovered. The new evidence proved to be a certificate from two women physicians that the alleged co-respondent was *virgo intacta*, and as this statement was absolutely incontrovertible, the verdict was set aside and a new trial allowed. It is needless to dwell on the enormous importance of this kind of evidence, yet cases into which it has been introduced are very rare in modern trials. In one of Edgar Saltus' earlier romances, the heroine is accused exactly as was the young woman in the case under discussion and escapes with her reputation unspotted in the same way. At the time the novelist was accused of drawing unduly upon his lively and picturesque imagination, but it is likely that he had a genuine case or two marked for reference in the law books of some friendly learned counsellor. Those of our readers who are familiar with the less known history of the Middle Ages will recall numerous instances in which juries of matrons gave evidence on anatomical grounds, not only in the case of women, but also in that of wretched men who had been accused of *impotentia coeundi* and were obliged to controvert the accusation in the actual presence of a more or less sympathetic group of matrons or withdraw from their marital claims in confusion, and probably, we regret to state, with little sympathy from friends or public. Such juries were not abolished until close upon the epoch of the French Revolution.

The Temptation to Suicide.—The discovery of the diary of the lamented Scott, the English South Pole hunter, brought to light a distressing passage wherein the explorer, worn out by worry and fatigue and the responsibility of dragging a wounded comrade along, tells how he ordered a distribution of opium and morphine tablets among the party with the plainly stated object of supplying them with the means of suicide when all hope should be lost. Who shall condemn these men for their decision to ease the path to glory rather than undergo absolutely useless suffering? Yet we are despite ourselves thrilled to learn from later passages in the diary that the decision to die was revoked: "We must be near the end. I have decided it shall be natural. We shall march for the depot with or with-

out our effects, and die in our tracks." In vain have philosophers in all ages excused, even counselled suicide; mankind will always grant additional laurels to the men who fought death to the last ditch. Probably there would be fewer suicides in civilized surroundings if the means were not so infernally convenient to the hand when despair, which would possibly be but momentary if Nature had a fair chance to react, seizes upon a victim. Yet physicians have always about them a choice of paths to another world, and few men are more tempted, temperamentally and by their peculiar social relations to the community, to take one of them; yet suicide among us is rare. It seems safe to conclude that the mental condition of the self-immolator is pathological; suicide is commonest where mental strain is great and continuous, from study in Germany, from business in America, while physical labor and even physical pain do not seem to predispose to it.

Exit Lombroso.—Some six years ago an atrocious crime, known on account of the vehicle for the body used by the perpetrators, as the "trunk murder," was committed in the south of France. A facetious reporter on one of the Paris daily papers took the trouble to obtain prints of the hands of two harmless French artisans, the right hand of one, the left of the other, and submitted them to Lombroso with the statement that they were from the hands of the man accused of the murder and already in custody of the police. Lombroso fell into the trap and discovered most of his favorite stigmata of degeneration on these hands, which he pronounced to be those of the typical violent criminal. While the French have themselves been victims of several forms of charlatanry—notably of the Charcot experiments in hypnotic suggestion exposed by Hart of the *British Medical Journal*—they had never placed much credence in the extravagances of Lombroso, and this cruel trick of the reporter effectually laughed his theories out of France. Recent careful investigations by competent observers in English prisons have shown that there are no characteristic differences between the heads and figures of Oxford and Cambridge undergraduates and those of the convicts from Portland and Dartmoor. Attractive as Lombroso's theories are at first sight, especially to the teleological type of mind, they are literally too good to be true. Society would be admirably protected and the criminal type would soon die out if the latter was so distinctively marked off from normal humanity as to be easily recognizable. Yet so true is the opposite condition that Alcibiades, in speaking of Socrates, admittedly one of the wisest and most benevolent men in history, reminds the sage that he looks exactly like Silenus or a satyr. Thackeray chose Silenus as the type of horribly vicious, depraved and drunken voluptuary. Lombroso's typical criminal would make up very well for Silenus with his thick black hair, receding forehead, overhanging brow, exaggerated frontal angle and heavy jaw and lips. On the other hand, Gabriel Tarde, an eminent disciple of common sense and one of the best of French authorities on penology, after denying that there are any typical signs of criminality, brings about a *reductio ad absurdum* by demanding external marks of unshakable honesty. If the old school is right, he says, then honest men should be easily distinguished by their small maxillaries, straight forehead, tufted beard, constant and well marked superiority of the right side over the left, short arms, and an unusually keen sense of touch.

Morality and the Surgeon.—It began to look not long ago as if the criminal were to be handed over to the surgeon; criminality was being allied to certain forms of epilepsy as due to pressure on the brain. A trephining operation would relieve pressure and the bad man would come from under the anesthetic filled with ardent desires to be good, his criminal past forgotten like a nightmare. We have already discussed this theory and endeavored to show that at least a reeducation of the whole muscular system of a criminal would be required before he could be certified as a safe member of the community. A reaction, however, seems to be taking place in favor of the greater influence of environment in making criminals and we shall probably be relieved of the responsibility of their reform, which will be entrusted to

teachers. If there is anything remarkable about a criminal, it is, so to speak, the absence of anything remarkable. The novice in criminology is always surprised to note the extremely normal appearance of the subjects of his new study, especially after a term of imprisonment has steadied their nerves and cleared their complexions. Alcohol has always played a role in crime, very likely by its power to dull the higher faculties of the mind and to abolish ordinary caution and fear of consequences. To-day we are facing new crimes of amazing daring, like the smashing of jewellers' windows on crowded and brilliantly lighted thoroughfares, and these we owe beyond a doubt to the addition of morphine and cocaine to the criminal's armamentarium. The stupefied senses demand the utmost excitement which is afforded by light, crowds, the satisfying crash of plate glass, and the subsequent race in high powered automobiles to the popping of "gats." Where to attack the cocaine traffic so as to throttle it is a social problem of the first magnitude, complicated by the fact that a cocaine habitué will pay literally any price for a supply of the drug when the craving in upon him.

Physicians and the Patient's Teeth.—Practitioners are now sufficiently aware of the importance of the condition of the teeth in making a diagnosis and in indicating treatment and no longer consider it beneath their dignity to advise a visit to the dentist when well marked caries or pyorrhea is discovered. Sometimes, however, the patient will ask directly what toothpowder the doctor recommends and it is here that we believe the answer is often insufficiently considered and unwise. "Any good powder" is the usual reply and is inevitably construed to mean "any powder the druggist hands out, or any you like the flavor of." As a matter of fact the average tooth powder has very little cleansing power and resembles greatly nearly every other powder on the market. The combination of soft, pappy food, mucus, and salts that forms on the teeth, soon to harden into tartar, is extremely difficult to remove and demands a true detergent that will efficiently scrape off the mucoid mass, together with a fairly firm brush and much patience. There should be some such powder on the market, although we confess we do not know of any and it is the duty of the physician to find it and recommend it to the exclusion of all others. If the town's resources fail to furnish a powder of this kind, let doctor and dentist put their heads together and evolve a truly cleansing dentifrice. It is shocking to learn that the majority of men over forty years of age suffer from pyorrhea, a disease now suspected of being a potent cause of intestinal toxemia. Efficient oral cleanliness in youth with proper brush and some suitable dentifrice ought to do away with the extraordinary and unpleasant phenomenon.

MODERN THERAPEUTICS.

The Treatment of Pneumonia.—Hot baths and cold air for pneumonia are the two rather contradictory systems of therapy which seem to give equally good results—and yet they are not necessarily opposed. We have long known the grand results of keeping pneumonias in cold air, particularly the babies, and have also long known the seriousness of the disease in hot weather and hot climates, but we do not know why it is that simply breathing cold air is so beneficial. But we do know it and that is a solid foundation for theories which may lead to even better results. Now comes Lemoine with evidence published in *Nord Medical*, No. 409, to the effect that two daily hot baths of ten minutes each, water at 40° to 42° C. are remarkably beneficial in adults. At first there is a sensation of more fever, the pulse quickens and so does the respiration—sometimes to the point of dyspnea—but it reduces delirium, induces sleep, increases the urine and moistens the tongue, while the temperature comes down after three to five baths. The lung symptoms and signs improve, and there is a rapid convalescence. In 63 cases he had no deaths, and the sooner he began the treatment the better the results—some cases seeming to be aborted. In children he reduces the temperature of the water to 38° and bathes every three hours, as they suffer too much from the higher temperature and indeed there is some danger of convulsions. The

results in adults are almost too good to believe, and remind us of so many previously reported new and sure cures which could never succeed with others than their originators. Nevertheless the splendid results of substituting hot for cold water in bathing typhoids compel us to examine Lemoine's claims very carefully before rejecting them. Indeed it is quite likely that the hot water does relax the superficial circulation so that it can take up enough blood to relieve the embarrassed lungs—the same effect claimed for venesection by all the older physicians and not a few modern ones. In addition, there must be greater heat loss from the surface as in typhoids thus treated, and this may account for the greater and more lasting reduction of fever in both diseases. As a practical matter it is far easier in family practice to get the patient's relatives and friends to consent to hot baths than to cold —particularly in pneumonia which is so commonly attributed to chilling of an overheated body. Whether a pneumonic patient can be permitted to breathe cold air after having had ten minutes in very hot water is a question, but if a sufficient interval elapses, and he is properly covered up, it is difficult to see how the mere breathing of cold air, which by-the-way is warmed before it reaches the diseased lung, can have any ill effects. The breathing of hot air is so distinctly harmful that we must avoid it if possible.

Physical Therapeutics.—Physiotherapy is not only becoming more popular but is being placed on a distinctly scientific basis, and though still largely empiric it has not the absurdity of the ancient and medieval empiricism which was based on one or two coincidences sufficient then to convince credulous physicians in a credulous age. Nowadays facts are more carefully studied to see if there can be any causal connection between them. Enough has been learned already to have profoundly modified therapy and saved many lives. For instance, the great mortality of pneumonia at high altitudes quite naturally suggested removing such cases to lower levels and it was tried with so much success that it is now a routine in several parts of the world. On the other hand, there can now be no question that the rarefaction of the air of moderate elevations, as well as its coldness, has a beneficial influence in tuberculosis of the lungs. This generalization is not so conclusively proved as in the opposite case of pneumonia, but it has been considered sufficient by some specialists to warrant the construction of pneumatic cabinets for the treatment of various diseases in rarefied air, and there is ample justification for the construction of certain rooms in large hospitals wherein the pressure can be varied to suit the case. The comparative advantages of light or shade or even darkness, the effects of various degrees of heat both below and above body temperature, the action of complete dryness or moisture in the form of steam, water, or ice, the physiologic effects of electricity in its multitudinous forms and the purely mechanical effects of pressures or extensions and passive or active motions, are all enormous fields explored by many strenuous pioneers whose very enthusiasm has too often blinded them to the significance of the multitude of facts recorded by others or even by themselves. Taste and smell, the least effective senses in modifying physical states, do have considerable reflex influence by producing pleasure or discomfort, and though they are almost entirely in the sphere of dietetics and nursing we cannot exclude them entirely from therapy. The cumulative effects of one or several of the above factors are sufficient to kill those who are not physically able to resist them, and as a result every part of the world is peopled by a type fit to live there and nowhere else. Why then have we not organized to study the subjects in a scientific manner? Why have not our physiologic laboratories done more work in this line and given us more generalizations for therapeutic application? The experiments of Dr. H. C. Wood whereby he proved that real sun-stroke was an effect of heat alone, have enabled us to save untold lives, and the experiments of Sir Ronald Ross on the effects of cold air may also lead to invaluable therapeutic measures.

The German Society of Physiotherapy is the first in the field, though we have had special societies a long time. Its recent meeting in Berlin has caused considerable comment in the lay press, but little notice in medical literature. Unfortunately Germany is cursed by too many alleged balneotherapists who have used valuable waters for diseases in which no effect is possible.

It is quite likely that the new society will throw a searchlight on these dark practices so that our patients can escape the humbugs and be guided to men who are not only scientific but honest. An incredible number of millions of dollars are annually taken to Germany by American invalids or near invalids and the amount is increasing by reason of improved facilities for travel, so that the spas are a source of enormous wealth to the nation. Unless the Germans put their house in order and eliminate the quackish misstatements of the advertising literature written for laymen, they are liable to taint the whole system of scientific balneotherapy and lose a legitimate profession. Patients should be sent only to men known to be reliable, but when we find out how these physical agents act it will not be necessary to send any at all. Serum and vaccine therapy are driving drug therapy into a minor role for infections except as adjuvants for special conditions, but physiotherapy seems destined to become the sheet anchor in both infections and general conditions due to pathologic changes in the tissues. We therefore urge ambitious young men to take up the experimental study of the effects of all physical agents, for it is safe to assure them that if possessed of the rare power to observe and generalize they are sure to dig out information of immense value to mankind in preventing or curing abnormal functions. This is another hint to millionaires who are more desirous of having their wealth do good than of having it squandered by worthless surviving relatives to their own destruction. The harvest is ready, and so are the laborers, but we want tools and a place to use them, and some bread and butter.

ETIOLOGY AND DIAGNOSIS.

The Pathology of Arthritis Deformans.[1]—The secondary or toxic nature of arthritis deformans and chronic rheumatism is a recent generalization which is receiving ample confirmation in many directions. As previously mentioned in these columns, Sir Wm. Arbothnot Lane has reported cures following short circuiting or excision of the colon when stasis was the cause of the absorption of the poisons of putrefying foods. Peter Daniels of London has shown that long continued suppuration of the orifices of the body may give rise to these conditions so that the cure of what may seem to be a trivial pus focus in the head may cure a disabling condition of the joints. Eugene Fuller now reports cases of cure by removing local pus foci in the genitourinary system. Perhaps medicine has not witnessed a more beneficent discovery, for in our former ignorance as to the cause of these chronic joint troubles, we have pottered around with palliatives and then generally acknowledged defeat and abandoned the sufferers to a shortened life of misery and disability. The French detective, in unraveling a case, first "finds the woman." The diagnostician in every chronic joint trouble should first find the pus focus. Even tuberculous joints are secondary according to recent views. It seems that in all chronic conditions we are beginning to abandon direct attacks because, like modern soldiers, we are more successful by the method of flank movements to cut off supplies. As for prevention, the outlook is indeed rosy. All the little things we formerly ignored assume vast importance. There is no question that the attention now given to school children will prevent an enormous amount of chronic invalidism in years to come—and, what is more important, will prevent many a case of active tuberculosis.

[1] *Medical Record*, Oct. 18, 1913.

A New Method of Detecting Occult Blood in Gastric Cases.[1]—Dr. Arthur L. Holland has devised the following method to exclude the possibility of deception by minute quantities of blood swallowed with mucus from the upper air passages and also the small quantities sometimes present from minute lacerations in passing the stomach tube. He mentions the utmost importance of obtaining accurate information early in cases of ulcer or carcinoma, and the frequency of deception from a positive reaction due to the above contaminations.

The patient is directed to present himself in a fasting condition. His throat is sprayed with a bland neutral oil. Only those patients who have become used to the tube after one or two previous examinations are used for the test. A very soft closed-end Delafield No. 30 French tube is gently passed, the patient sitting on a low backless stool. The stomach is then subjected to a thorough lavage with tap water. This lavage is continued until the returned water is clear and free from particles of mucus or other material. As a rule considerable swallowed mucus is encountered in the fasting stomach. This in the writer's experience is the greatest source of error in the ordinary tests, as most of it originates in the nasopharynx and contains sufficient blood to give a positive reaction. The stomach being clean all of the water is syphoned off. Two hundred cubic centimeters of a 1 per cent. solution of hydrogen peroxide are then introduced. The operator now stands at the patient's right side with his left arm about the patient's neck and holds the

[1] *Medical Record*, Oct. 11, 1913.

tube between the fingers of the left hand close to the patient's teeth to prevent it from being vomited or pulled out. With his right hand he holds aloft the funnel end of the tube. The patient is now directed to lean back until the body is in a horizontal position. This position is maintained for one or two minutes to allow the peroxide solution to thoroughly bathe all parts of the stomach. It must be remembered that most ulcers and new growths are situated near the pylorus or on the lesser curvature. The solution is carefully syphoned off and tested in the following manner:

The entire specimen is placed in a narrow graduate and allowed to stand for several minutes. This is to give the gas bubbles time to rise to the top, carrying with them the disintegrated pus or mucus with the blood that the solution may have collected from a possible ulcerating surface. The top 50 c. c. are then drawn off and placed in a small Erlenmeyer flask and well shaken. To this are added 20 drops of a solution of benzidin, freshly made by dropping 1 decigramme of benzidin in 3 c. c. of glacial acetic acid. A green color appearing within one minute indicates a positive reaction.

In 20 analyses the following results have been obtained: Nine analyses in cases that had, by other methods, shown occult blood where the clinical findings indicated neuroses or mild disturbances of digestion, were negative.

Six normal individuals were negative.

One apparently normal individual was positive. (This patient had never had a tube passed before and it was not possible to clean out the stomach as thoroughly as it might have been).

One patient whose case had been diagnosed repeatedly as gastric ulcer, but in whom an impacted gallstone was subsequently found on operation, was negative. (The test was given to this patient on two occasions so sure was the writer that he was dealing with an ulcer).

Two cases diagnosed clinically as ulcer were positive. (Both of these cases gave straight ulcer histories with the characteristic pain one-half hour and two hours after eating and on examination the localized tenderness of ulcer was found in each).

One case of alcoholic gastritis, with a history of recent vomiting of blood, was positive.

The Diagnosis of Malaria.[1]—Henson, after emphasizing the value of blood examination for malarial organisms concludes:

In the event that quinine has been administered before the patient comes under observation a tentative diagnosis of malaria even in the absence of the detection of the parasites is justifiable under the following circumstances:

(a) That a clinical history of malaria is obtainable.

(b) That the patient has an enlarged spleen.

(c) That a leucopenia is present.

(d) That the red cell count is below normal.

(e) That the hemoglobin is reduced.

(f) That a differential count shows an increase of large mononuclears.

If these rules are adhered to, which may within certain limits be elastic, the many incorrect diagnoses of malaria that to-day cover a multitude of sins and constitute the greatest blot in tropical medicine will be removed and many of the unfortunates that to-day consider themselves the victims of chronic malaria may be told what their condition really is and possibly be relieved from further suffering.

[1]G. E. Henson, M. D., *Southern Med. Jour.*, July, 1913.

TREATMENT.

The Vaccine Treatment of Typhoid Fever.—The Paris letter of the *N. Y. Med. Record*[1] says that Prof. M. Chantemesse recently read a paper on the above topic to the Academy of Medicine, and says that "Roux was the first to suggest this method of treatment twenty-five years ago. This form of therapy is undoubtedly a good one provided that the following rules are followed: The treatment should be employed as soon as possible after the beginning of the disease. Small doses of sterilized typhoid cultures should be used. Only two or three injections should be given at intervals of several days. Only the most minute doses should be employed in the case of patients severely ill, or in whom the treatment is begun late, on account of the anaphylaxis that develops in the courses of typhoid fever. The bactericidal power of the vaccine causes the entrance into the circulation of a large dose of toxin which gives rise to a defensive reaction on the part of the lymphoid apparatus. It is this reaction which increases the resistance of the patient and facilitates cure. Of 1,000 typhoid fever patients treated by M. Chantemesse with his serum there were but forty-three fatalities, while at the same time in the other hospitals of Paris there were 170 deaths in 1,000 cases. Roux believes that antityphoid vaccination provides an excellent means of diminishing the mortality from typhoid fever.

The vaccine of Chantemesse consists of an emulsion of typhoid bacilli killed by heat. It is prepared in the following manner: Upon a gelatin plate well spread out there are sown five cubic centimeters of a 24-hour-old bouillon culture of typhoid bacilli. The plates are kept in the incubator at a temperature of 57° C. for eighteen hours, at the end of which time there are added to each plate 5 cubic centimeters of sterile physiological salt solution. The culture is detached from the surface of the gelatine by shaking. The contents of several plates are then emptied into a sterile flask, thoroughly stirred, and then divided into sterile test-tubes, which are sealed with the aid of heat. One definite volume of the emulsion is diluted with

[1]Oct. 18, 1913.

one volume of water containing formaldehyde and colored blue. The sealed tubes are heated in the water bath and kept at a temperature of 56° C. for one hour during which period they are shaken several times. The vaccine should be used not later than three months after its preparation. Chantemesse's vaccine consists of an emulsion of the bodies of the typhoid bacillus suspended in a sterile liquid. The antityphoid vaccines prepared by Professor Vincent of Val de Grace consist in the one case of an emulsion of the typhoid bacilli killed by ether, and in the other case of an autolysate of the typhoid bacilli sterilized by ether. The Academy of Medicine approves and authorizes the preparation of the vaccines of Chantemesse and Vincent."

Epilepsy in Children and its Treatment with Bromide.[1]—The author says that, although the bromide treatment is the best for epilepsy, its success depends greatly on the method of administration and the attention given to the details of diet and hygiene. It is indicated in all cases in which convulsions are present and should stop all motor phenomena, but in cases of petit mal, without any convulsive movements and of mere dizziness, it is less successful. The cause of the attacks should be carefully sought out and as far as possible removed. A daily history card kept by the parents is a great aid to the physicians in the knowledge of the number and type of convulsions, and thus of the effect of bromides. The bromide must be given in sufficient quantity and for a sufficiently long time, generally for several years. He prefers a mixture of the three bromides, sodium, potassium, and ammonium, to which he adds in some cases calcium bromide. The dose must be carried up to a point at which the motor manifestations are controlled without marked bromism, and must then be kept at that point for months or years. Irregularity and lowering of the dose without permission is responsible for most of the failures. A great aid to the effect of the treatment is given by restricting the amount of chloride of sodium that is used with the food to a small quantity. The bromide is then effective in smaller doses. It should be continued three years after the last attack.

Treatment of Flatulence.[2]—Flatulence, says Prof. Robin, is one of the most frequent symptoms of every form of dyspepsia, especially in that due to fermentation.

At the beginning of the process of digestion flatulence is purely gastric, later it becomes intestinal and manifests itself by quantities of wind and tympanites. It is characterized by frequent eructations and bubbling sounds synchronous with the respiration; the neighboring organs are more or less compressed, provoking in many cases dyspnea, oppression, palpitations and cardiac intermittence. When the gases cannot find a way of escape meteorism sets in, to the great danger of a weak heart.

Herschell believes that the cardiac compression may provoke sudden death, and those persons known to suffer from disease of the heart, who are found dead in bed in the morning, succumb during the night to syncope produced by flatulence.

Flatulence has a double origin: Gas developed during gastric fermentation; air swallowed with the food or otherwise (aerophagia).

The gases engendered by fermentation are but little abundant, but the presence in the stomach of air swallowed with the food increases the amount of gas developed during fermentation. These gases are composed of azote, oxygen, carbonic acid, but also hydrogen and, in certain cases, sulphuretted hydrogen. Contrary to what is observed in pure aerophagia, these gases are more or less odorous.

The treatment of flatulence due to gastric fermentation is that of fermentation. Small doses of fluoride of ammonium:

Fluoride of ammonium 6 grs.
Water 10 ozs.

a tablespoonful in the middle of each repast (2).

In the case of lactic fermentation the double iodide of bismuth—erythrol—should be preferred,

Erythrol ½ gr.
Prepared chalk 5 grs.

for one cachet; taken after meals.

The nature of the food ingested should receive attention; every article to be excluded that has tendency to ferment: pork, game, shell-fish, cheeses, grease, sauces, etc. It is also necessary to aid rapid evacuation of the stomach by giving bitters to stimulate the muscular coat of the organ—

Tincture of nux vomica 3 drs.
Hippo wine 1 dr.
Essence of aniseed 1 drop.

ten drops in a little water after meals.

Absorbents, and particularly poplar charcoal, are good adjuvants.

In the second variety of flatulence, that due to aerophagia, the etiological characters are quite different. The digestive troubles are provoked, not by a dyspeptic condition complicated with gastric fermentations, but by the deglutition of quantities of air—enormous quantities in some cases. Fits of eructation appear at any moment; they are independent of the ingestion of food, come on spontaneously or under the slightest exciting cause, cease suddenly, are not painful. In most cases, aerophagia represents a simple neuropathic manifestation.

The treatment of this form is that of the cause—neuropathy. In slight cases, hydrotherapy, ether spray over the epigastrium, massage may be useful, but in aggravated cases these means are inadequate.

The patient should be instructed as to the nature of his affection, and advised to control the movements of deglutition. A good way of avoiding aerophagia outside of meals consists in keeping the mouth open as long as possible

[1] E. L. Boncour, M. D., *Prog. Medicale*, May, 1913.
[2] *Med. Press and Circular*, Oct. 29, 1913

by means of a piece of cork or india-rubber placed between the teeth, thus involuntary deglutition is prevented.

Where the gas escapes with difficulty, tympanism and meteorism set in with all their complications. Here Seltzer water may be tried, ether may be given, while gentle massage is made over the epigastrium.

HYGIENE AND DIETETICS.

The Hygiene of Infancy and Childhood.[1]—A. Friedlander notes the importance in modern preventive medicine of the reduction of infant mortality.

Between 1880 and 1910 there has been a steady decline in infant mortality in New York City, from 288.9 per thousand to 133.9. In contagious diseases there has been a decline of 70 per cent, in the diarrhoeal diseases of 37 per cent, and in the respiratory of 38 per cent. So great has been the gain that the health department affirms that within natural limits a community can determine its own infant death rate. In 1908 the division of child hygiene was organized, it has established 79 milk stations and has 157 trained nurses who make home visits. Little Mothers Leagues have also been organized to teach young girls the practical methods of baby hygiene and feeding; this division has 44,000 babies under its control.

The two most important problems which it has under consideration are the reduction of infant mortality from congenital causes and the mortality among institution babies.

Of the deaths under one year of age 35 per cent depend mainly upon the condition of the mothers during pregnancy and confinement, while 42 per cent occur among babies who are in institutions.

Sir George Newman states that the problem of infant mortality is not one of housing nor of sanitation nor even of poverty but of motherhood.

A milk station means a combination of good milk, a capable matron, a place to bring babies, a nurse to meet the mothers, to return to the homes to treat the sick ones and to teach the mothers how to care for and feed them, and a supervising physician.

The question of infant mortality bears a direct relation to the milk supply.

The question of school hygiene is so vital that nations may be strengthened by placing school children in a good physical condition.

Allport states that 75 per cent of the school children in this country are suffering from some defect which interferes with their physical, mental and moral advancement.

The open air school offers at least a partial solution to the tuberculosis problem and the most gratifying results have been obtained where such schools have been established and properly conducted. Another important problem relates to the mentally defective children of whom there are more than 300,000 in this country. This emphasizes the importance of medico-psychological examinations.

The laity has thus far done more for the defective child than the medical profession. Special training schools and special teachers are essential for such children. Psychological clinics should form a part of the school system everywhere. There is need and opportunity in such clinics for team work by psychologists, neurologists, psychiatrists and sociologists.

We see from the foregoing how vast and complex the modern system of public care for children is becoming. Though the subject is of paramount importance there is danger that the machinery may become too cumbersome. Highly as education and educational advantages ought to be valued a really splendid work may be overdone and be crushed by its own weight.

[1] *Interstate Medical Journal*, October, 1913.

The Open Window.[1]—A medical inspector of the Philadelphia public schools recently made an experiment to determine the value of cold fresh air in school rooms, with the cooperation of the teachers and parents of the pupils.

He opened the windows at the top and bottom and kept them open during the entire winter. The room was shut off from the heating plant of the building except when the temperature fell below 45° F. The children wore extra wraps and had frequent drills and exercises. Week by week during the fall, winter, and spring he weighed and examined the pupils, watched their study and their play and compared their progress in health and scholarship with that of pupils in another room of the same building. In the latter room the pupils were of similar grade and of about the same number, but the room was heated and ventilated by the usual methods. The pupils in both rooms were normal healthy children from the same kind of homes so that the test was as fair, accurate and searching as possible.

At the end of the experiment it was found that the pupils in the open window room had averaged a gain in weight more than twice as much as those in the warm air room. They had also been wholly free from colds and had been more regular in attendance than the others. They were also more alert, learned their lessons better, needed less review work, and were better behaved. In health and happiness and in development of mind and body they had a clear advantage over the others. This Philadelphia experiment not only gave to children who were well some of the good things which nature intended that they should enjoy but it demonstrated to school officials and parents the advantages of low temperature in the school room.

The result of this experiment was that the school board in Philadelphia has authorized the establishment of open window classes in several other schools.

[1] *The Medical Times*, October, 1913.

GENERAL TOPICS.

The Invention of Spectacles.[1]—Oliver states that there is ample evidence to show that biconvex lenses were used by the ancients as burning glasses. Pliny relates that glass balls filled with water were used by physicians for burning, and were to be bought from medicine dealers, and, perhaps, formed part of the armamentarium of the practitioner. That glasses were invented at the end of the thirteenth century in Italy is abundantly shown by the great majority of contributors to the history of this subject, and either by Armati and Spina together or independently of each other. At the same time in Germany and Flanders old people were using glasses. The first medical man to mention glasses was Bernard Gordon, educated at Salerno, and professor in Montpellier. He said that they were not necessary, thanks to his remedies for eye complaints, which so excelled that they made those whose sight was failing able to read small print without the use of glasses. Guy de Chauliac, body physician to Popes Clement VI, Innocent VI, and Urban V, also lauded his own eye lotion, but added: "If this doesn't relieve you, then try eyeglasses." No one at this time knew anything at all about the refraction of light, hence the senseless talk about the various remedies. The laws of optics, relating to glass lenses, have been known only since the time of Maurolycus (A. D. 1494-1575) and the immortal Kepler (A. D. 1571-1630). The physician who first ordered glasses in a professional capacity was one Montanus, a teacher in Padua. He ordered protecting glasses, reading glasses, and, some say, prisms. Physicians at this time evinced great hostility to the wearing of glasses, and owing to the way in which they dissuaded the people from their use, it was not to be expected that it would spread very rapidly. In early times men were strongly opposed to this custom, as at first glasses were ill-shaped and most disagreeably striking in appearance, and, more than this, they directed the attention to a physical disability. Patients wearing glasses were made fun of, and not altogether in a very tender manner. Their prohibitive costliness rendered the wide adoption of spectacles impossible. At the end of the sixteenth century the price per pair, expressed in terms of present-day value, was from fifty to a hundred dollars. From this circumstance glasses which frequently had costly ornamental fittings were seldom seen, and then in the possession of wealthy people only. The history of the development and use of the concave lens is very different from that of the convex variety; it came on the scene much later. There is no mention whatever of concave glasses by the ancients though short-sightedness was well known, not as an error of refraction, but as a weakness of the eye. One can assume with a fair degree of certainty that concave glasses came into use about the middle of the sixteenth century.

[1] G. H. Oliver, F. R. C. P., *Brit. Med. Jour.*, Oct. 25, 1913.

Special Fracture Number.—*The American Journal of Surgery* will present in January an issue of their journal devoted exclusively to fractures and their treatment. The following subjects will be presented by acknowledged authorities in this special branch of surgical work:

"Astragalus Injuries," by F. J. Cotton, M. D., Boston, Mass.

"Diagnosis of Fracture," by Lewis A. Stimson, M. D., New York.

"Position in the Treatment of Juxta Epiphyseal Fractures at the Hip and Shoulder," by Fred Albee, M. D., New York.

"A Splint for Maintaining Nail Extension During Transport," by John C. A. Gerster, M. D., New York.

"Fracture of the Skull: Roentgen Ray as an Aid in Its Diagnosis," by W. H. Luckett, M. D., New York.

"Vicious Union," by James K. Young, M. D., Philadelphia, Pa.

"The Immediate and Remote Results of Fractures of the Skull and Spine," by Chas. Elsberg, M. D., New York.

"Conservation in the Treatment of Fractures," by Wm. L. Estes, M. D., South Bethlehem, Pa.

"Some Phases of Fracture Treatment as Based on Hospital Experience," by E. S. Van Duyn, M. D., Syracuse, N. Y.

"The Treatment of Fractures," by E. P. Magruder, M. D., Washington, D. C.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.

of AMERICAN MEDICINE, published monthly at Burlington, Vt., as required by the Act of August 24, 1912.

Managing Editor—H. EDWIN LEWIS, M. D., 57 W. 58th St., New York.

Business Manager—WM. T. HANSON, 1576 Bergen St., Brooklyn, N. Y.

Publishers—AMERICAN MEDICAL PUBLISHING CO., 84 William St., New York.

Owners—H. EDWIN LEWIS, M. D., 57 W. 58th St., New York City.
W. B. HOWE, Free Press Ass'n., Burlington, Vt.

Known bondholders, mortgagees, and other security holders, holding 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

H. EDWIN LEWIS, M. D., Managing Editor.

Sworn to and subscribed before me this fifteenth day of September, 1913.

H. SCHUYLER CAMMANN, Notary Public, Nassau County.

American Medicine

769

EDITED BY

H. EDWIN LEWIS, M. D. and CHARLES E. WOODRUFF, M. D.

PUBLISHED MONTHLY BY THE AMERICAN-MEDICAL PUBLISHING COMPANY.

Copyrighted by the American Medical Publishing Co., 1913.

Complete Series, Vol. XIX. No. 12.
New Series, Vol. VIII, No. 12.

DECEMBER, 1913. $1.00 YEARLY in advance.

At the Year's End.—Another year has gone. Everyone has something pleasant to remember and something painful to forget. May he do both. In our vocations we have all had successes which should encourage us to still more efficient labor, and we have all had humiliating failures which will teach us how to avoid similar errors in the future. AMERICAN MEDICINE wishes to do what it has always tried to do—preach the gospel of optimism, peace on earth, and good will to all men. The world is good, and it is good to be in it and of it. The very joy of living should make us forget the evil done by bad men. There are not so very many of them, though more than there should be, but their bad works are negligible when compared to the good works of all the rest. Medical science has advanced as though it were under the special guidance of Providence—and it makes all men glad. Every year there are fewer young promising lives snuffed out, and more preserved to pass on to years of fullness. The world is becoming full of old men, passing the decline of life with happy consciousness that they will soon hear the "well done, good and faithful servant" and then enter into their long rest. The past year has seen the extension of all the plans for human betterment, and the birth of many new ones. The world has been getting better, as it always has. There is less big crime, and more care to apprehend minor criminals whose acts were considered only immoral a generation ago. There are fewer new cases of insanity because better living prevents them, but there are more cases under treatment because they are kept alive longer. There are fewer consumptives, fewer cripples, fewer beggars, and yet a grand increase of voluntary contributions to the agencies for the prevention of disability. In the abundance of our blessings we are almost blinded to the evils around us. Men are getting ashamed of riches, for they have come to realize that mere wealth attracts self-seekers to them and too often repels those who have been like Agassiz—"too busy to make money." Wealth is being considered more and more as a loan of social property which must be used for the social good or taken away as in the parable of the talents. This is not the time to worry over past wars, but to be happy over future peace. Wars must come, but they are now merely to make peace more lasting. In its little sphere, AMERICAN MEDICINE has tried to do good—and to "make good." It has been so generously commended, that we think it has succeeded—in part at least—and it will try, try again. It thanks its many friends, and will try to return good for the acts of the few who are not its friends. Tiny Tim said "God bless us, every one," and He has—beyond our deserts. Away with pessimism! Do not think of the high cost of living, but of the fact that we live better every year in spite of its cost.

The ventilation and sanitary condition of cinematograph theatres is receiving a deserved amount of attention from the Chicago Health Department, and it would not be a bad idea to take up the matter everywhere. As a rule these places are overcrowded, overheated and utterly devoid of

ventilation. The ceilings are entirely too low and the stench is often sickening. Children are taken into them while convalescent from communicable diseases and still excreting the specific organisms. As the conditions are ideal for the transfer of contagion directly to the healthy, there must be many a case of illness contracted this way. In the influenza season the theatres must be responsible for many cases. Indeed such meeting places are always clearing houses for swapping infections. The proprietors and managers are often grossly ignorant of sanitation and naturally resent interference with their "rights" to spread disease. Little children should be kept out of them anyhow, as they derive no pleasure or benefit. Older people might use a little influence to create a public demand for the inspection of such places, with the view of passing laws permitting the authorities to close those which are not properly ventilated.

Are the functions of boards of health in New York purely honorary? A New Rochelle correspondent of the *New York Times* says so, and moreover he intimates that, as no salary is attached to the office, the incumbent is not expected to do anything or know anything. If there are many more citizens having such curious ideas, the sooner the boards are abolished by law the better. Nevertheless there is a widespread feeling in America that no one has any public duties except the employees we hire for pay, and until this delusion fades in the light of knowledge of our real status as a self-governing nation, we must expect inefficient government by public servants. The British Empire is founded on a system of local government by unpaid boards and commissions. The members of the upper classes are expected to do the work, and most of them serve in return for the income from lands granted to ancestors for some great and self-sacrificing public service. Shirks are more or less ostracized and men who attain wealth are not fully accepted in society unless they shoulder a part of the burden of voluntary public service. The lower classes, on the other hand, expect everything in a public way to be done for them, and will not lift a finger in public service unless paid for it. *Noblesse oblige* is apparently a fixed policy throughout the world. America is settled by the lower classes of Europe, as a rule, and they bring their ideas of public service with them. Their ancestors have been too busy keeping themselves alive, poor things, to have a minute to spare for others. So it is evident why social duties are left to the well-to-do who have the time, energy and ability. Still, there is no reason why a man should continue to neglect the work when he can afford the time. The backwardness of public sanitation in America is in large part due to the failure of physicians to take that interest in the matter which characterizes the profession in Europe. We have said all this before. We intend to say it again and again until we find more interest taken in public duty by those who can afford the time. Boards of Health should be composed in large part of physicians who know what sanitation is and will spend a little time in the improvement of existing conditions.

The great reduction of municipal typhoid seems to be an almost universal phenomenon both in Europe and America. Baldwin of the New York City Health Department has collected statistics from the five largest cities in Europe and

five in America which show that wherever sanitarians have been given the opportunity, typhoid has decreased to less than a third of what it was twenty years ago, except where it had already been reduced to a minimum by the sanitary measures then available. Berlin had a bad record in 1870 but by 1890 she had reduced the deaths to about nine per 100,000 population, and 1.9 in 1912. Hamburg improved when the filtered water supply was introduced in 1892, but it has since then reduced the death rate from 9 to 3.2 in 1912. Vienna deaths decreased from 9.4 in 1890 to 4.1 in 1910. Paris from 28.2 to 6.7; London 14.8 to 2.6 in 1912; New York City 21.8 to 10; Boston 34.6 to 7.9; Chicago 91.6 in 1890 and 173.8 in 1891 to 7.5 in 1912; Philadelphia from 63.6 to 12.5. The statistics of fifty other American cities were published in the *Journal of the American Medical Association,* May 31, 1913, and they show the same splendid results wherever sanitation has been given a chance, the only exceptions being those backward communities contented with medieval filth. As a rule American cities are rapidly becoming as free of the disease as the much lauded European ones, and if we make due allowance for the cases which receive their infection in the country, some of our towns in respect to this disease are the safest places in the world. Even the country districts are improving, the state of Pennsylvania for instance has reduced its typhoid deaths from 54.8 in 1906 to 16.5 in 1912. There is much more to be done before we equal the record of the larger German towns—6 per 100,000—and a lower rate throughout Great Britain and northwest Europe generally from which the disease has almost disappeared. So we must keep up the good work and also try to shame the backward places into a sense of decency and cleanliness. It is a matter of regret that in order to convince the public of the necessity of sanitary expenses we must prove to them, not that the money saves health and life, but that it is a good investment, preventing money losses due to sickness and death and enabling people to work more days per year. Therefore we must call attention to the innumerable studies made in this line, which prove that for every dollar spent on our Departments of Health, the country is the richer by several other dollars which would otherwise be lost by sickness and death.

The reduction of typhoid is the greatest life saving achievement of modern sanitation and should be studied in that light rather than the sordid one of a few dollars spent or saved. It is to be noted that publicity is largely responsible for these great works, because it seems that the world over, the typhoids of the Spanish and Boer wars awakened people to the necessity of doing something for themselves, and it is a fact that this modern reduction of typhoid began immediately after these two wars, even in those European cities which had already reduced the number of cases to what was then considered an irreducible minimum. We must now recast our opinions and decide that the irreducible minimum is the complete disappearance of the disease, and such a condition of affairs is entirely practicable if we will only back up the sanitarians. The best cities are mostly in the north; Cambridge, Mass., with a death rate of 2.8 last year; Paterson, N. J., 4.6; Cleveland, Ohio, 5.9; Worcester, Mass., 6.6; Bridgeport, Conn., 7.4 and Chicago, Ills., Cincinnati, Ohio, and Jersey City, N. J., each 7.5. The worst are half in the south; Memphis,

Tenn., 56.2; Atlanta Ga., 35.2; Grand Rapids, Mich., 34.0; Toledo, Ohio, 33.0; Nashville, Tenn., 30.1; Milwaukee, Wis., 25.3; New Haven, Conn., 24.5 and Baltimore, Md., 23.9, so we must all be careful when we visit them in the typhoid season. Washington and Philadelphia which were formerly death traps have now rates of 21.2 and 12.5 respectively but still treble and double the average rates of German cities. Philadelphia's rate is still more than six times that of London and Washington's is twelve times. So there is work ahead for their health authorities, who will succeed if the people will only support them.

Incompetent and worthless boards of health were strongly denounced by Dr. W. T. Sedgwick, Prof. of Biology and Public Health in the Massachusetts Institute of Technology, at the annual meeting of Life Insurance Presidents, Dec. 12, 1913. He said that, of the numberless boards in existence, only a few are doing good work and serving the people as they should be served. Some are badly managed, some have no funds, some appoint ignorant or worthless officers, and some are largely composed of Micawber politicians out of a job, waiting for something better to turn up. He states that these are the main reasons why half of the American cities are so backward in the matter of sewage disposal. He mentions Manhattan in particular as "an island surrounded by sewage," and that we ought to spend at least as much in carrying away sewage as we are now spending in bringing to the city the water which forms the sewage. He even thinks we must not balk if it costs us hundreds of millions, for the conditions are intolerable and must be corrected. The present estimate is about thirty dollars *per capita*, and unless we make early efforts to borrow the money, the chances are fairly good for losing a hundred dollars per capita in sickness, death and deterioration of property values from loss of commerce and industries which will drift to places where it is safer to life and health. It is a pity that we do not have more outsiders to come to the city and tell us how bad we are, and how slow in beginning a reform. London came near losing its commerce from the filthiness of the Thames, and has found that the sums spent in carrying the sewage many miles down stream to disposal works is the most profitable investment the city has ever made. We will find the same of our future investment, and so will every other community which is now throwing its filth on its neighbors.

The football fatalities of 1913 were *only* fourteen, and the badly injured 175, but the players have amused millions. As they enter the field they should shout, "dying we salute thee," and perhaps the spectators would get so ashamed of themselves that they would resolve never to go again. The Army and Navy game took place in spite of condemnation of the Superintendent of the Military Academy. Everybody was delighted, entranced indeed, but Midshipman C. J. McReavy will probably be lamed for life by "a badly dislocated knee and torn ligaments." "Perry, who played centre was kicked in the side and has an internal injury." If at this point of the game, the managers had cleared the field and introduced some bulls and Spanish bull-fighters, the audience would have departed in horror. The worst of it all is the evidence published by the surgeon general of the navy, that athletic cadets never amount to much as officers and also break down sooner than the non-athletic. Few become admirals—a job requiring brains rather

than brawn. Perhaps in a century or two we will drop football as too dangerous, but there is no hope of an earlier reform as long as old people, who ought to know better, are flattering boys to go in for it. Why not advise them to take up aviation—the deaths are less painful and no one is ever crippled. The anti-vivisectionists or the S. P. C. A. might do something—students are animals. Incidentally we might mention the 135 who have been accidentally killed in 1913 while hunting deer. We would like to draw a moral from that fact, but the only thing we can think of, is the proof that 135 of the hunters were not fit to have firearms in their possession, and have killed 135 who probably were fit. Perhaps a hunting license should not be issued until the applicant has been subjected to a rigid mental examination by alienists and psychologists. Anyhow, hunters are a brave lot of men to face such large chances of death, as brave as beefy footballists.

Medical discussion of female suffrage has become quite common of late, and bids fair to become still more so. Curiously enough, the most recent of the antis base their objections upon the fact that women are mentally different from men, and yet this difference is the main reason why women should vote. In the beginning of social life, voting was done with battle-axes, and women could not take part even if they wished. As we waxed in numbers and intelligence, we became welded together into large nations for the main purpose of replacing the battle-axe vote of brute strength by the verbal or written one of intelligence, so that we could survive even if we were physically feeble. Laws are often unsuitable because they are devised by the male half which does not express public opinion, and we have no way of finding out what the people want—that is, the immense majority who are never heard in public. Man's mind was evolved in the million year struggle to bring safety to this social organism, and only those tribes survived in which the men could join together in team work and some would sacrifice themselves, if need be, to save the whole even if his own family later suffered unto death by starvation. On the other hand, woman's mind was evolved to save the family, and she will sacrifice herself for them but not for others or for the whole. Each sex was compelled to do things which could not be tolerated in the other if society was to survive, and a single standard of ethics for both is utterly impossible. Each normally does things which the other considers immoral. Sir Almoth E. Wright of London has gone over these differences and his book written to combat equal suffrage is in reality a strong reason why we should have it if elections are ever to express real public opinion, particularly on internal or national economic questions. Physical feebleness has long ceased to be the disqualification it surely was when fighting was an ever present possibility to save the tribe and family. If war comes now, only a few have to be sacrificed, though it must be confessed that if war should be so fierce as to involve the whole land—a very improbable possibility—women's votes will be as completely ignored as they are in Turkey or the Balkans. There brute strength rules to save the women's lives. Similarly the periodic nervous disturbances of women must be ignored now that a few psychologists are convinced that men also suffer from a similar if not identical rhythm. The crusade itself is proof that women's opinions must be considered if we are to get public opinion.

There is now no question that female suffrage is sure to come in the higher civilizations. There is legitimate doubt that it will accomplish what is claimed for it by small sections like the total-abstainers who will be overwhelmed by the vast majority who are not in full sympathy. Besides there are bad women who will counteract the good, just as is the case in many a male election.

The militant suffragettes are also coming in for a lot of medical comment, mostly as to whether they have become hypnotized, obsessed, insane or are really carrying out a revolutionary reform in the normal way men have always done. We must confess, by-the-way, that we do not know of any male movement which was characterized by deliberate attacks on the property of its sympathizers. Violence is always directed against opponents, except in the case of mobs in popular uprisings where the emotions of crowds are not checked by calm counsel. The non-militant English suffragettes, whom we consulted, seemed quite unanimous in opinion that the violent wing had caused such a reversal of public opinion of both sexes, that no government bill would stand the slightest chance of passing and its introduction would only weaken the ministry. They have deserted the movement to wait patiently until the violence died out or the militants died. No one wished for their deaths, but the expression of the brutal facts has given that unhappy impression, as our correspondent so well states in another page. It would hardly comport with the policy of peace on earth and good will to all women as well as to all men. All the thinking people of Great Britain are now trying to devise means whereby the militants will not injure themselves, the cause or society. This wonderful nation has weathered far more violent reformations by its genius for compromise and can be trusted to straighten out this tangle. There is one superlative advantage of a limited suffrage to women, and that is, it will lead to the disfranchisement of the men too stupid to vote. In time of war, such men will not be trusted in any capacity. So perhaps also we will see women regularly drafted to the army as nurses or makers of clothing and munitions, like the men are drafted to do the actual fighting. That is, the power to vote for a war, carries the duty of doing all the voter can do to make the war successful. The militants are doing at least one good thing —they are advertising the fact that there is a growing demand that women should participate in civil affairs.

The distinction between eugenics and prevention of disease should be clearly understood for there is a popular tendency to confuse the two movements to the injury of each. For instance, the increasing demand that couples wishing to be married should present evidence of some sort that they are not diseased in any way which would be injurious to the other partner or to offspring, is bound to result in a tremendous betterment of public health. It will lessen the number of women innocently infected by husbands and there will be fewer deaths and fewer sterile women and fewer who pass a miserable weary existence, blaming matrimony and pregnancy, which really increase health and happiness and prolong life. Physicians seem to favor this movement and some advise the enactment of laws making such prenuptial certification compulsory, though there is considerable doubt as to whether an effective examination of young girls about to be married would not

be resented at present as too immodest to be tolerated. Young men no doubt will be restrained and will try to keep healthy when they realize the demand for some kind of a safeguard for women. Discussion then is likely to bring out practicable suggestions. All this is commendable, but it must not be called eugenics in any sense of that much misunderstood movement. People kept from matrimony by temporary sexual illnesses might be the best of breeders from the social view point. They must be classed with those suffering from diphtheria or smallpox—temporarily unfit.

It might be said that to prevent a child being blinded from an infection acquired during parturition or prevent mental defect from syphilis acquired before birth, may cause many babies to be well-born who would otherwise be ill-born, but this is no more eugenics than preventing tabes or paresis by guarding one from syphilis in later life. Hygiene and sanitation prevent all kinds of deformities due to disease, but eugenics concerns itself solely with non-infectious transmissible abnormalities.

Eugenics is the science of being "well-born" or eugene but not necessarily free of disease. As the subject of heredity is little understood, we have made scarcely a beginning in finding the reasons why some are ill-bred or cacogene though born of apparently eugene parents, and why most of humanity are eugene in spite of badness in some ancestor. We cannot take steps to prevent the birth of all cacogenes until we know what causes them, though we are on safe ground in excluding from matrimony those who cannot possibly have normal offspring—the mental defectives, deaf mutes and certain epileptics. This is merely a negative eugenics, yet even here we must go slowly because the borderland between these extreme cases and the strictly normal is very broad. In a sense it might be said to include all humanity for no one is perfect. We do not know enough about the tricks of heredity. People are not infrequently shocked to find on genealogical research that some ancestor was a scoundrel. It is quite possible for one generation to be abnormal from some temporary cause and yet regeneration take place upon restoration to a normal environment. It would be a sad world if all our acquired badnesses were transmitted. On the other hand, our "best people" often prove to be the worst breeders, having offspring who are burdens to themselves, parents and society—and we haven't the remotest idea why. Criminals generally come from respectable families, consequently the sterilization of criminals can have little effect in reducing the criminality of the next generation. As for positive eugenics or selection of mates to improve the breed like cattle, we need only mention it to condemn. Practical eugenists never think of it. Even among royalty where selection is generally for state reasons, personal preferences have great weight.

The environment selects the fittest and nothing except trial will determine what are the fittest. Even if we knew what was the best type for present day civilization and could breed up that type, it might be utterly unfit for the conditions a century or two hence. Sparta made the greatest blunder of history in her positive eugenics. She bred up only soldiers, and killed the physical weaklings, even though they may have been mental giants who could have preserved the state. When the new stress came she had no defenders and disappeared. Japanese royalties for over a thousand years have carried on a most rigid eugenic sys-

tem, but they have ruthlessly condemned to celibacy the surplus stock not needed to keep the family alive. Only about 150 now exist. Commoners can not do this as the environment is not as unchanging and restricted. We might breed up a type which like the Spartans would perish in a changed environment. If none but big blonds had been selected by the French to colonize Louisiana, there would now be no French there, as the sole survivors of the mixed immigration are solidly brunet. We then must let matters run on as they are, supply every conceivable type and let nature make her own selection as she will do this anyhow. She is the great eugenist, but she works by killing off the unfit. Let us remember that some of our best men are great by reason of nervous characteristics which unfit them for parenthood. Some of the physically perfect haven't sense enough to warrant survival as a type. Few men are perfect physically, mentally and morally. None are superlative in all three respects, and even if there were any, they might be very unsuited for the future. That is, we cannot breed a best type because we cannot tell what it is or will be.

Exaggerating the power of heredity is the besetting sin of the students of this subject as we have often remarked. Unless the tendency is checked by physicians we will drift into a false position. Specialized workers always do magnify the importance of their own field, and carry the world with them if they are persuasive. Much attention is now being given to imbecility and other nervous defects and the idea has been expressed in a popular article that "with the rarest exceptions the cause of imbecility is heredity and heredity alone." We must protest against the serving up of such nonsense to the lay public who are not able to detect its essential absurdity. If it were true, then an imbecile's ancestors would be imbeciles back to the first pair. As the whole race is descended from only a few individuals of primitive stock, we ought all to be imbeciles. There is no question that imbeciles do appear in defective stock far more often than in normal, but the process must have had a beginning sometime. Every defect has a cause somewhere. We as physicians must look for the cause and not sit down like fatalists saying it is God's will—heredity. Only a savage's god would will that—by Binêt's test 30 per cent. of school children should be subnormal. As a matter of fact much imbecility has been traced to toxemia, mostly syphilitic, though any maternal infection will cause abnormal fetal development. Then again it is an accepted fact that a large number of the 30 per cent. subnormals are results of defective nutrition. Instead of being unpreventable results of heredity, the vast majority of man's woes are brought on himself by his own ignorance of proper ways of living. They are strictly preventable, environmental and not transmissible. It is absurd, for instance, to forbid the marriage of a man and woman simply because tuberculosis has appeared in each stock. That policy would exclude nearly all civilized races. As a fact we are coming to think that neither this disease nor the tendency to it is hereditary, as we all contract it in infancy and as it remains latent and harmless unless we lose immunity from some other adversity.

The real results of heredity are often overlooked. "Subnormal" school children while mostly due to underfeeding or disease are often perfectly normal specimens of lower races who have not evolved the brain of the higher. These arrested races have developed enough intelligence for

survival in their particular ancestral environments and that is all nature ever does for man. In the north of Europe it required more brains to struggle for existence in primitive times and only such variations did survive. The low types flocking here from central or southern Europe inherit their lowliness and never can develop highness in their offspring except by nature's murderous way of killing the least intelligent. Of course they might mate with higher types as has been suggested by those who are more interested in raising the lowly than in lowering the best. The scum of Europe comes here with the rest and will be with us always. Here is the place for pessimism, not the preventable defects arising in the upper races. Heredity preserves type if the environment permits and that is all there is to it. Those "subnormal" children who are really normal specimens of their race will remain "true to type" for all time even if they do learn how to read and write and vote as the boss orders. Education won't give them brains or make them capable of producing intelligent children. Pessimism here may lead to restriction of immigration as soon as people learn that low types only lower the race by amalgamation. True scientific eugenics would exclude them from marriage here if it could, but let them marry in the countries which evolved them as the fittest for those particular places.

The effects of intramigration on national health, is the subject of a remarkable article by Dr. J. Stewart Macintosh (*Brit. Med. Jour.*, Aug. 17, 1912) to which American physicians should give thought. He finds that in the past when lack of transportation facilities prevented individual migration, each locality in Great Britain tended to produce a type fitted for it by the ordinary process of killing the unfit who had migrated to it in the occasional invasions of military masses. In recent decades it has become an exceedingly easy matter for a person to migrate to where he may be able to make more money than at his birthplace. In consequence many happen to reach places for which they are unfit, and they suffer unduly from some diseases to which the older adjusted types are immune. Several other British observers have been noting similar facts, and have thereby opened up an enormous and rich field for cultivation not only by academic anthropologists but by practical physicians in search of knowledge to assist them in therapy. Macintosh has been particularly struck by the fact that the Baltic type of man needs an outdoor life with plenty of room, a comparatively dry atmosphere and dry soil, and that this type suffers unduly in confining occupations and where it is damp in soil and air. This type was dominant when most employments were outdoor ones, but the darker types, by reason of superior fitness, are assuming almost complete control in modern factory labor. The light types fail in this struggle for existence and fill up the ranks of outdoor labor. They drift into the army, navy, marine, police—indeed into any occupation which their remote ancestors practiced so perfectly. Army officers complain that they get the misfits of civilization, but they ought to be glad, for these types are splendid, and they keep order in the Empire permitting industrial workers to exist in dense masses which would be utterly impossible without the restraining influence of a strong police power to keep order. It has long been thought that the Baltic type is sea-faring because it is an aquatic type, but Macintosh thinks it

largely because of their love of the open. Indeed he finds that actual fear of closed places, claustrophobia, is very largely an affection of blonds. All this is of enormous value in America where nearly everyone is more or less out of adjustment to climates different from the European ones which evolved us. If Macintosh can find noticeable effects of the slight differences of English environments, surely we should be able to find much more marked effects in our more varied climates. The environment has completely eliminated blonds from the French of Louisiana and similar results are occurring elsewhere to other types but we have paid no attention to it. As many a life can be saved by sending the patient to the right place for him, no matter what the disease, it is high time that we look into the matter. A climate good for a negro will kill an eskimo, and the same can be said of minor differences only it takes longer. Climatology is utterly worthless unless combined with anthropology. It is a subject for the practitioner to investigate and whether he be specialist or not, he is the only one who can dig out the facts from his case books. The laboratory research workers who are doing such grand work in other directions have fewer opportunities to get at the facts of this class.

The educational value of music has been occupying the attention of English pedagogs for some years, and the Headmasters' Conference at the College of Preceptors, Dec. 22, 1912, passed the following resolution unanimously: "That this Conference desires to draw attention to the movement for the provision of regular musical teaching, especially in sight-reading for younger boys." In the discussion on the resolution, it was asserted that when children were taught the proper position of the body, singing had a great effect in developing the chest directly, and other parts of the body reflexly. It was a real calisthenics resulting in better respiration, and this probably would diminish the number of cases of tuberculosis. The teachers quite naturally emphasized the mental effect, and claimed that music was a decided mental stimulant. It was noted that as soon as the children began to use their brains in reading musical signs and making the appropriate sounds, their intellectual development was noticeably advanced. It is questionable whether we ought to stimulate mental development to a quicker pace than nature designed, for we have ample evidence that it is easy to overdo the matter and exhaust the delicate machinery beyond repair. We all know of failures due to such forcing in childhood. The German nation, in spite of its wonderful advances, is beginning to realize the damage done by the excessive training of its tiny children. Still, we are probably safe in assuming that the stimulation of music is not of a kind to do harm but merely wakens into activity some faculties which are already developed though dormant. What cannot be denied or condemned is the training in restraint which accompanies chorus singing in school. Inhibitions are developed very early and merely need exercise, but we are very lax indeed in this matter. The American boy is notorious the world over for the lack of restraint which in later years leads to contempt of all control, defiance of law and order, and our dreadful resort to murder. Surely, if singing helps to restrain, let us take it up too. Above all other benefits is the training in cooperation, what the English masters call cooperate action—

that wonderful teamwork on which is based the greatest Empire the world has ever known. We are still more or less in the individualistic stage of our colonial days when every man had to depend on his own two fists as there were no policemen to tell our troubles. Every American boy is taught to rely on himself, whereas he learns in after life that he must rely on some corporation to which he must be a loyal team-worker. Everyone in America wants to be in the center of the stage—a star—but the chorus of laborers does the work of the world. Our English pedagogs are now asserting that chorus singing is invaluable in training boys to work in concert. All this has been known in America for several decades and singing is an essential part of educational methods from one end of the country to the other. The English have been very backward but, somehow, they put the matter in a new light. Few American teachers thought of singing as much more than a recreation, a mental freshening from the dryness of other training, an amusement perhaps. It must be a great satisfaction for them to know that what was taken as so empirically has a real scientific basis.

The value of singing for mental defectives is a point the English have not mentioned in their discussions, but it has long been a practical matter in America. The ability to make sounds, more or less musical or pure, is almost universal in vertebrates with lungs and it is well developed in new born infants. In the training of defective children, we must begin with something they can already do. The exercise of will power and restraint certainly awakens some of the other dormant faculties. Hence it is found that musical instruction, particularly singing, gives us a tremendous leverage to move the poor clouded mind, except perhaps in the lower grades of idiots. Tone-deafness is very rare and even idiots, like blind Tom, might be occasionally found to have enough sense of sound and power of repetition to use in developing what little intelligence their brain permits. Some of the backward children can be made into useful or at least partly self sustaining members of society even if they must be kept under some kind of restraint all their lives. In every way we look at the matter, it seems there is ample justification for insisting upon musical instruction as an essential of our system of education to make a child more useful to itself and society. It is not a fad in any sense, nor a mere accomplishment to increase the pleasure of living, though the latter purpose is not to be despised even if it were the sole end of music. The lives of the poor have been and are so hard that a little pleasure is needed to make the struggle endurable. It might be well then, for a little moderation in the fashionable criticisms of fads in our public schools—at least as far as music is concerned. As physiologists we can assert that music in proper amounts will make it easier to impart "the three R's" so dear to the heart of old fashioned uneducated folks. Furthermore, if the new movement to turn our school boys into some new kind of apprentices under training to make their living, their progress will be more rapid and solid if music smoothes the way. Most European nations and the Japanese teach their soldiers to sing on the march, as experience shows they get over the

ground with less exhaustion than when they force themselves in silence. The march through life will be equally eased up if we sing away our worries. Let the schools have more music, not less.

The alleged perils of teachers have been greatly exaggerated; indeed, though we have no recent statistics on the subject, we know of no proof that teachers have any very great morbidity or mortality. They certainly do not compare with physicians in diseases due to exposure, to adversities or irregularities of existence. One rather gains an impression that teaching prolongs life, for the percentage of elderly persons in the profession seems to be much higher than among physicians. We must wait for exact statistics before forming conclusions. We are now merely stating impressions. Teachers have occupational diseases as in every other calling, but because these diseases are in somewhat different proportions than in other professions, is no reason for giving to teachers a degree of sympathy out of all proportion to the risks they run. We have previously called attention to the nervous-breakdowns so much more common among them than among other professions and have presumed that it was due to the confinement and the necessity for self-repression in the annoyances of dealing with more or less disagreeable children. No one's youngsters are angels except our own, and we know very well what a relief it would be to a teacher to spank someone else's dear little Johnnie, instead of forcing a smile with a gentle reproving word. Then in days of headache or other physical ailments, the effort to keep up when bed is the proper place, must make tremendous inroads on one's nervous reserves. We believe that much of this damage can be repaired by proper outdoor recreation every day, change of work on holidays, and complete change of environment in vacations. Yet some of the damage is irreparable in the neurotic. The retired list is not only humane to the teacher but a real necessity to scholars who are greatly injured by such irritable, cross, neurasthenic teachers. Children thrive best when controlled by strong persons of even temperament, but they strongly resent the uneven conduct of the irritable teacher. So let us have an extension of the benefits of retirement to keep our children in strong hands which are not senile even if not youthful. But until proved otherwise we must conclude that these occupational diseases—chiefly neurasthenia—do not afflict more than the special infirmities of other callings. It has been said that teachers run great risks from diseases brought by children from homes where there are infections, but as a matter of fact they are largely immune to such diseases and it is now proved that if we do contract them it is from the carriers and convalescents. Physicians do not suffer from these diseases as a rule and why should teachers who have less contact? We are inclined to blame bad ventilation, overheating and overlighting—matters the teachers themselves should be directed to regulate. Outdoor schools must be in the shade and they have not injured the teachers as far as we know. We are quite sure the glare is not as bad as in many a school room, the ventilation is perfect and the air is cold.

MEN AND THINGS.

The lasting influence of John Hunter is one of the amazing facts of modern medicine. Hippocrates influenced medieval medicine a longer time because he was a great observer and there was little advance in any science for nearly two thousand years. It seems that the medical science of the Homeric Greeks was built up by invading northmen who were vastly more intelligent than the earlier inhabitants who were conquered and enslaved or at the best were excluded from citizenship like we excluded American Indians. When the intruding type died out, there was no one to carry on the science and "native" physicians then blindly followed the teachings of the ancient masters. There was no subsequent advance until northmen again took it up, and it required many centuries for the science to drift north into the hands of these people. When they did grasp what had already been learned, what a revolution occurred! It is now known that the modern medical work of Spain, Italy and to some extent France also, was the work of northmen who had drifted south or whose immediate ancestors had. As they disappeared, medicine received more and more of advances from the N. W. Corner, Pasteur, Lister, Virchow, Koch, and the interminable list of those still living. Hunter seems to have been the first to study on the true scientific principle of experimental or observed facts. Dr. J. M. Bruce in his Harveian oration, (*Lancet,* Nov. 1, 1913), has gone over the progress of medicine since Harvey's death in 1657, and has shown that practically everything of value has grown from the foundation laid by Harvey. There is no question that all these leaders and pioneers would have worked on scientific lines instead of following blind precedent like the medieval southmen, and would have accomplished great things, but it seems that the work of Harvey gave a start to all later advances. The amazing fact is the slowness with which we took up Harvey's true conception of infection and immunity. To be sure, we had to wait for the invention of the microscope to demonstrate the cause, but in the interval there were few if any of sufficient genius to prove it circumstantially or by statistics. Similarly the fact of evolution by natural selection waited too long, for Harvey conceived it accurately. Perhaps it might be well for all of us in our leisure moments to go back to the writings of these first moderns and see if some of them have not given hints which explain present day problems. Lettsom of London for instance in the 18th century "carried his patients (typhus and possibly typhoid) out into the cold fresh air and wondered at the long neglect of the method" and Fothergill used "free air" in "putrid sore throat." We notice the pioneers only when someone else rediscovers the facts. Mead outlined modern sanitation in 1720. It is a pity that we are all too busy with the future to take time to find out whether the past has not already found what we are after. The History of Medicine is therefore of such great value to investigators and we regret it is so universally neglected. Lister's discovery should have been antedated 200 years, for Hunter said: "I have myself (says he) for experiment's sake occasionally pricked my hand with a clean needle, and then having rubbed the same needle on the teeth of a spider I have pricked my hand in another place. I could not by my simple sensations perceive any difference between the two punctures. Nevertheless there was a capacity in the skin to distinguish the one from the other, for the part pricked with the envenomed needle immediately contracted into a tubercle, and by and by became red and hot and inflamed, as if it collected and girded itself up for a contest with the poison of its overthrow." Strange that no one thought of putting this experiment to practical use for 200 years. Literature must be full of such hints.

David Starr Jordan's unscientific attitude towards war is one of the many amazing instances of the vagaries of scientists when out of their sphere. Everyone of sense deplores the dreadful destruction of life and property in war, and is heart and soul with those who would replace it by arbitration. The movement is only injured by exaggerating the evils and minimizing the benefits of international duels. War preserved this nation and abolished slavery and the results were worth the cost.

These ends could not have been attained in any other way. Nothing but war could stop the massacres of Christians by Turks, and the cost was a trifle compared to the gains. Dr. Jordan thinks he has found that war, by destroying the best, is responsible for the extinction of the men who built up Greek and Roman civilizations. As a matter of fact war destroys only a very small percentage in each generation, and the survivors are amply able to keep the type in existence. The birth rate is so great that only a few breeders are needed. The offspring of the few fittest are the only ones which survive anyhow whether there was war or peace, and war cannot kill them all. The eugene are those fit to survive, not necessarily those fittest for war. Clergymen have often ascribed Roman decay to the rottenness of the morals of the time, though the morals were not bad until the decay was well advanced. Immorality was the result not the cause. Sir Ronald Ross blames malaria for extinguishing the big blond invading Homeric Greeks. Climatologists assert that lack of adaptation was the cause and that migrants always melt away if they reach a climate wholly unfit for them. Dr. Jordan will find plenty of causes for Roman decay without lugging in this absurd cacogenic theory. There are plenty of unsettled international affairs in which neither side will dream of arbitration so sure are they that they are right or can win by force. There is a feeling that arbitration is adopted only when war is impossible, and the increasing bonds of mutual interest between all nations are lessening war. Arbitration is not doing it. From a hygienic and eugenic aspect, Germans are quite largely of the opinion that their army returns to the people much more than it receives from them. Those who think the cost is all wasted, are very badly deluded ignoramus. Physicians should look into the whole subject, as the profession has been unjustly placed in the column of those who would not go to war under any circumstances. It is hell to be sure, but even the devil himself is not as black as he is painted.

The abrupt dismissal of experienced American officials in the Philippines is causing a lot of comment from those who think they have the interests of the natives at heart. There is one great good it will accomplish, and that is it silences those who have been industriously spreading the delusion that nature was a fool to go to all the trouble of making the natives different from other people, and that northern types would colonize there successfully and thus prove that the Creator blundered. Some of these men forgot the deaths and were honestly deluded by the survival in apparent health of a few European many years. Others have amazingly held up the small death rate among Europeans in all tropical places as proof of the wholesomeness of the tropics—and have concealed the fact that the death rate is low because those who cannot get well there of tropical conditions are sent away to die. Some private hospitals have resorted to that trick at home, and have been known to dump the fatal cases on the public institutions, and then proudly compare their own low death rates with the high mortality of the public hospitals. This does no special harm, but the conspiracy to give the tropics a clean bill of health has deceived a lot of people who have fearlessly gone to their deaths when they should have stayed at home. It has not deceived life insurance physicians a particle, but we hope there will now be less of this nonsense to mislead the public. Man defies the law of adaptation at his peril.

The astonishing failures of strong men are far from explanation on physiologic or pathologic grounds. It was a common experience in our civil war, that medium sized and short men would come into camp in better shape than the tall and strong. The Surgeon-General of the Navy has been calling attention for several years to the eventual collapse of officers who were distinguished as athletes while students at the Naval Academy. The non-athletic last longer as officers and give better service in the long run. The usual explanation has been that athletic sports cause a strain for which the organism is not built. The heart is enlarged or dilated and the nervous system is more or less exhausted, particularly when "training" is practiced for long periods. Certainly this accounts for the

tuberculosis, alcoholism, nephritis and heart disease which seem to be the afflictions of the athletic. Perhaps also the exceedingly muscular are tempted, every now and then, to exert their full strength for short periods and thus put the tissues to an unusual strain although never indulging in athletic sports. In no other way can we explain the utter collapse and death of Petty officer Evans, the strongest man in the ill-fated Scott expedition to the South Pole. He must have had weak spots which gave way under strains which were harmless to the rest. He may have been injured by falls on the ice and he did not have the great mentality necessary to keep one alive and going in spite of adversity. It is this unknown quality of grit or backbone or sand or whatever we may call it, which enables men to surmount life's obstacles. It is inherent in the quality of the stuff our nerve cells are made of, and if it is not there, the man is a quitter. Evans "lost heart" and that was the end of it for him. He may have been exhausted, but men of "great heart" will not give way to despair when exhausted. He was simply unfit, but no one seems to know why. Was he too strong?

The international list of causes of death has been published by the Census Bureau and sent to every physician in the country. So much good was thus done that the bureau has prepared a second edition under the supervision of Dr. Cressy L. Wilbur, Chief Statistician for Vital Statistics, and it is now being distributed. We bespeak a careful reading of this little booklet with a view of improving the quality of death statistics. The profession as a whole has been reprehensibly careless in using terms which merely indicate a symptom or complication, and give no information as to the real causes of death. There has been vast improvement in the last few years, but there is room for more, as we understand that in some localities the returns are so worthless that they convey only a vague idea as to what is killing the inhabitants. People are becoming wise to this state of affairs for they know that sanitarians cannot prevent the preventable until they know what it is. We are liable to come under popular condemnation unless we reform, and the first reform is to use terms which have a meaning. The next point is to discard all synonyms except the one selected in the list. Even in our conversation it would be well to do this. Above all else, we must avoid the "undesirable terms" mentioned in the booklet. The approved list is not perfect—nothing human is. The Census Bureau suggests that if it does not contain a term needed, a selection can be made from those recommended by the Royal College of Physicians or The Bellevue and Allied Hospitals of New York. Writers, in particular, should discard all terms except those recommended, and in this way the profession will educate itself to some degree of uniformity.

A standard death certificate has been prepared and adopted or approved by every state in the Union except eight. This is a great advance over the time when scarcely two cities used the same form. Even yet there is unnecessary diversity in spite of state approval of the standard form. Some authorities may not approve the standard form in all its details, but they should realize that their pet forms are sure to be changed by some successor with different views. To hold out from adopting the standard only postpones uniformity. Why not adopt it universally and then when defects are discovered of sufficient gravity as to demand change, it can be reformed at some of the annual meetings of health officers or registrars. The registration area of the United States is slowly extending and it is only a matter of a short time when it will include the whole country. Our backwardness has been scandalous and our improvement is still shamefully slow. Would it not be a good plan for physicians throughout the country to publish the fact that, as a rule, where vital statistics are neglected so is sanitation, and that the preventable deaths are very numerous. It would then be an easier matter to have standard forms and lists of causes of deaths adopted and means devised for the collection and publication of the statistics. It is all so important as the basis of life saving and disease prevention, that one is amazed at our slowness. It really impugns our intelligence as a profession.

A New York School of Tropical Medicine has been a crying need for a long time, because so many parts of this country are sub-tropical and the students who intend to settle there are in need of special instruction in matters which are more or less neglected in the usual curriculum. In addition there is a constant stream of young physicians going out to remote places in the tropics and they are ill equipped for the work they have to do. Of course many schools have established lectureships, but these do not supply the demand. The schools in Hamburg, Liverpool and London are yearly training hundreds of young men for the colonies and are highly successful. These cities have been selected because of the clinical material which is brought in by shipping from all parts of the world. New York has similar material which is now going to waste while there are scores of students in desperate need of it. Our southern states have such bad records for morbidity and mortality that some life insurance companies do not like to take risks there. Most of this sickness is strictly preventable and one of the reasons it is not prevented is because the majority of southern physicians have learned their business from lecturers and writers who have no experience whatever with southern conditions. For this reason hook-worm was not recognized for a century. We are not belittling the brilliant attainments and splendid work of so many of our southern brothers. They are fully aware of their local conditions and know the remedies, but are handicapped by the indifference which follows ignorance in and out of the profession. We are inclined to think that a special diploma from a school of tropical medicine should be required of all men seeking a license to practice in the sub-tropics or tropics. Then it would not require ten or twenty years of experience to be able to cope with the special diseases found in hot places. Now that Cornell has received an enormous endowment from a rich man, we might timidly suggest to someone else with more money than he knows how to use, that he endow a "New York School of Tropical Medicine." The Chamber of Commerce and other commercial bodies might interest themselves to bring about this desirable end. Boston and New Orleans seems to be getting ahead of us and yet we have the most opportunities.

The death of Alfred Russell Wallace removes another great man who lived too long. When a young man, collecting natural history specimens in the Malay archipelago, he conceived the greatest idea in the history of natural science—the idea of the origin of species by the natural selection of the fittest for survival. He sent his paper to Darwin who had conceived the same idea over twenty years before but who had delayed publishing it until he could collect enough data to prove the theory beyond the possibility of successful denial. It was therefore right and proper that the modern biologic system built up should be called Darwinism and not Wallacism, but it was a hard fate that he should have been anticipated. Though Wallace was a prodigous worker and collector and discovered some remarkable facts in the distribution of plants and animals he has added practically nothing more to the world's knowledge which could be called new, certainly not epoch-making. Yet his fame would have endured to the end of time on the strength of that one great idea which came to him in the tropical jungles of Malaysia. His book on the Malay Archipelago is one of the world's great classics and is as fascinating now as when it was published. When old age began to deaden his powers of discrimination and judgment he began that remarkable career which his friends would rather forget. His investigations in spiritualism might have been scientific but lost all weight when he persisted in his support of certain "mediums" after they had been exposed as vulgar tricksters. His attacks on vaccination have had little effect because his mental inability to come to logical conclusions seemed to have been recognized. He lived to be nearly 91, yet his reputation would have been far greater had he died thirty years sooner. The harm he has done is luckily buried with his bones and the good will live forever—thus reversing what seemed to be the history of most of mankind. Modern medicine owes almost as much to him as to Darwin, and will be grateful enough to excuse his senile vagaries.

ORIGINAL ARTICLES.

STUDIES IN OBSTETRICS AND GYNECOLOGY.[1]

A Series of Contributions on Diseases of Women.

BY

ELLICE McDONALD, M. D.,
New York.

among them bone instruments for the catheterization of the female urethra. It is probable that since that time, except for surgical cleanliness, there has been but little improvement in the technique of catheterization. The catheter is still thrust in as if the bladder were a cyst which must be punctured with a trocar. The nurse grasps the instrument with a firm grip, pre-

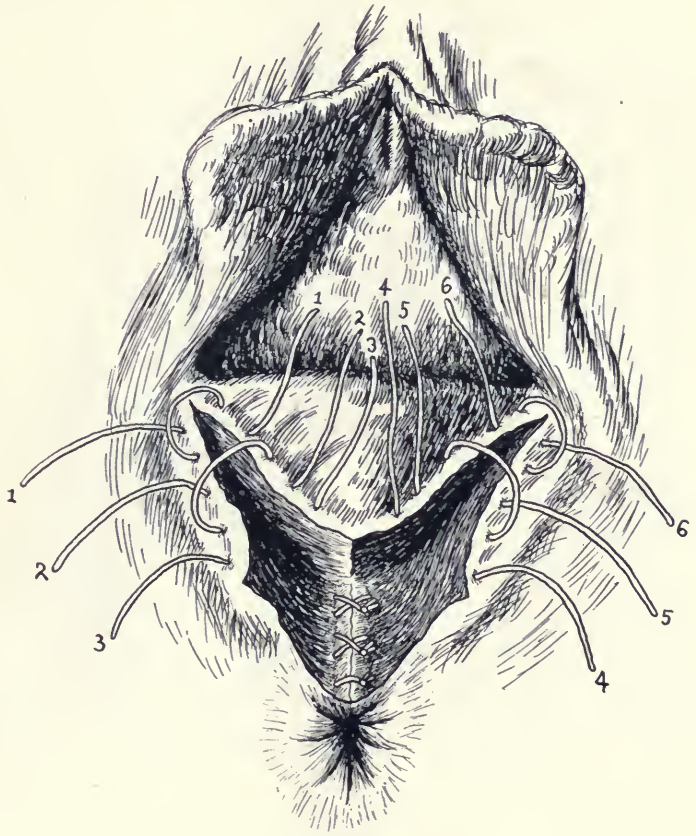


FIG. 7. ILLUSTRATING LACERATION OF PERINEUM (CHAPTER 14).

CHAPTER XV.

PREVENTION OF CATHETER CYSTITIS IN THE FEMALE.

Introduction.—The use of the catheter is as old as the Pyramids. The remains of surgical instruments in some of the recent Egyptian excavations included

pared to stab the patient if she moves or attempts to escape. After several ineffectual jabs and thrusts, the catheter is thrust half way in and the operator stands up in triumph to allow the congested blood to escape from her head and brushes her hair out of her eyes. In some hospitals, the technique varies. In one, the nurse was required to wash her hands as for a

[1] Continued from November issue.

surgical operation, then to put on rubber gloves and gown. She must then take bichloride and five gauze wipes and rub one over each labia (being four labia) and one over the meatus, then with her gloves well contaminated and the parts well irritated by the bichloride, she thrusts in the catheter.

The production of catheter cystitis depends upon injury to the tissues, particularly to the mucous membranes in the neighborhood of the neck of the bladder and the sphincter muscle of the bladder and urethra. Injury to the lower part of the trigone is particularly prone to produce bladder irritation.

It is well known that, in operations which involve external trauma to the bladder, such as complete hysterectomy, there is a very marked tendency toward cystitis. This is most frequent in operations which involve extensive dissection, such as cancer operations. There is, as a rule, a greater difficulty in urinating when morphine and atropin have been used.

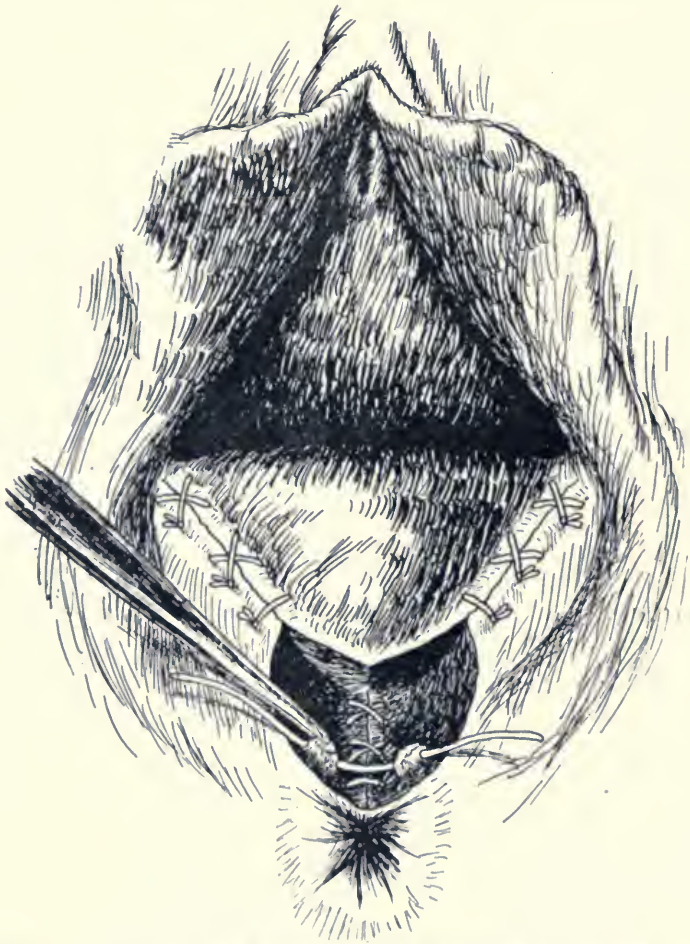


FIG. 8. ILLUSTRATING LACERATION OF PERINEUM (CHAPTER 14).

After labor also, there is sometimes difficulty in urinating. This is more frequent after forceps operations, and when the anterior vulvar parts have been injured or torn.

The mere presence of microorganisms in the urine is no reason for cystitis,

as it often happens that the urine contains pus-forming organisms without any infection. Injection of cultures of bacteria will not produce cystitis unless trauma is present.

This trauma usually comes from the introduction of the catheter. It may be that proper catheters, either too small or too large. The too large catheter causes injury from difficulty of insertion and stretching. The very small catheter causes injury, because its small size makes it very pliable and difficult of insertion and too much is usually inserted into the bladder. The best

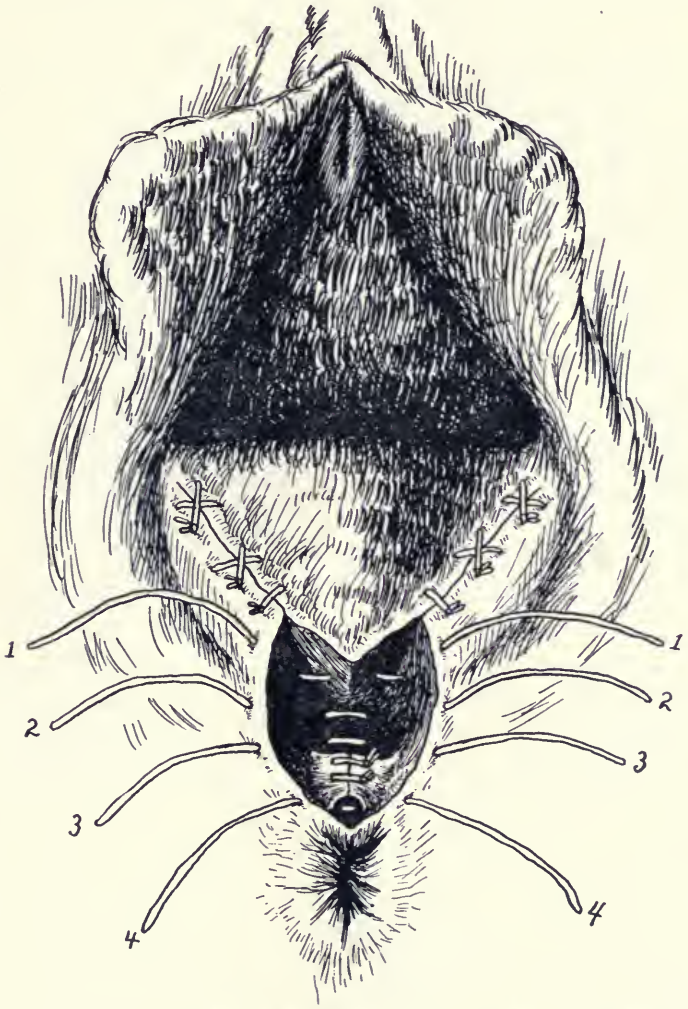


FIG. 9. ILLUSTRATING LACERATION OF PERINEUM (CHAPTER 14).

there is in addition injury from the operation to the walls, nerves and circulation of the bladder. The injury of the catheter is often the precipitating factor.

This injury to the urethra and trigone comes in several ways. First, from im-

size of catheter is one which will fill the urethra without stretching it. This is best done by a 15 or 16 French.

Injury also occurs from the catheter being required to be inserted too far into the bladder, with the result that, when the

urine is drawn off, the bladder contracts down upon the top of the catheter and injures its mucous membrane. In addition to this, catheters which have the eye in the side are not good, because as the urine is drawn off, the mucous membrane of the bladder is drawn into the eyelet and may be injured. This is particularly true, when the bladder is lax and the urine flows off faster than the bladder contracts. It sometimes shows its effect upon the flow of the urine when the "stammering" or "stuttering" of the bladder results from the mucosa filling the eyelet and being suddenly pulled away by bladder contractions. The flow of urine comes intermittently.

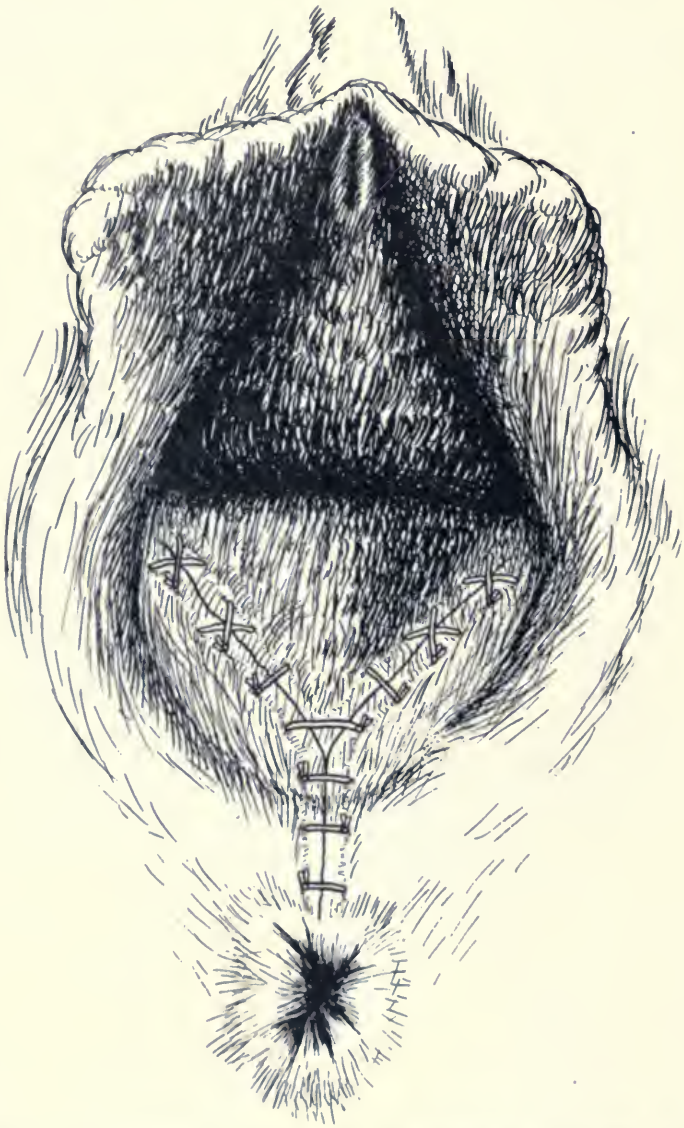


FIG. 10. ILLUSTRATING LACERATION OF PERINEUM (CHAPTER 14).

Then again catheters of firm material as glass do not adapt themselves to the shape of the urethra and so put the parts on

stretch and cause trauma. The urethra is a fairly regular curve with the concavity upwards and most glass catheters are straight with a beak or nose. They cannot accommodate themselves to the urethra.

To overcome these defects, I use a rubber catheter 15 or 16 French which has a hole in the end or an apical aperture. The catheter will not distend the urethra unduly and need not be inserted into the bladder.

a movable piece of rubber tubing which fits closely over the catheter. The nurse is instructed to measure the urethra at the first catheterization. This is done by passing the rubber catheter in until the urine flows freely. It is then gradually withdrawn until the urine ceases to run and then slowly reinserted until the flow comes again. This point is measured on the scale of the catheter at the level of the labia minora.

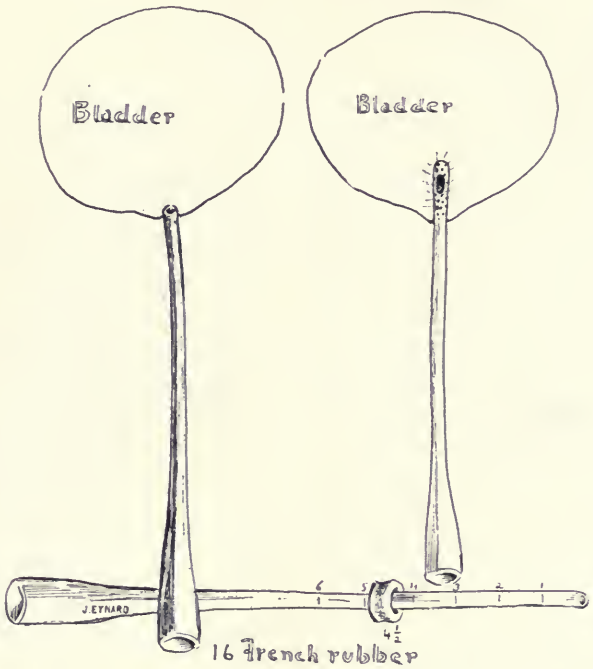


FIG. 11. ILLUSTRATING LACERATION OF PERINEUM (CHAPTER 14).

The urethra is of varying length in different women. The text-books on anatomy give the length of the female urethra at 6 cm., but I have rarely seen a urethra of this length. The length as measured with the catheter varies from 3.5 to 5.5 cm. with an average of about 4.5 cm. It is obvious, therefore, that it is never necessary to insert the catheter more than 5.5 cm. and usually less. For this reason, I have the catheter graduated in centimeters and use

At the succeeding catheterization, the rubber guard is moved to this point and it is then assured that the catheter is not thrust in too far. On the first catheterization the guard is placed at 5.5 cm., so that, until the urethra is properly measured, it is sure that the catheter is not thrust in very far. This maneuvre is very easy, and the rubber guard can be cut from any tube of a proper calibre.

Technique.—With a proper instrument, it is necessary to know how to insert the catheter. This depends upon two things: proper lubrication and a relaxation of the sphincter of the bladder.

Lubrication is necessary for the insertion of any instrument over mucous surfaces. No one would think of inserting a male sound or a rectal tube without greasing them, but the female urethra has had to suffer for its shortness. Here greasing is just as necessary as in the anus, where the passage is no longer.

A useful lubricant for this purpose may be made by boiling Irish moss in water. Three ounces of Irish moss should be taken and washed in running water for a half hour. It should then be placed in two pints of water in a saucepan and allowed to boil over a rather slow fire, while constantly stirred. If it is not stirred, it had better be put into a double boiler, otherwise it will stick to the bottom of the saucepan. After this has boiled for ten minutes, it should be taken off and passed through a fine wire strainer, such as is used in kitchens. If it does not flow readily through the strainer, it may be expressed by means of rubbing a large spoon against the meshes of the wire. This strained jelly is again put upon the stove and sterilized by boiling for one-half hour with sufficient water added to make it of the consistency of jelly. After one-half hour of boiling, the jelly is taken from the stove and poured into lead paint tubes which have been previously boiled with their stoppers in another vessel. Before the jelly is poured into the tubes, it is my custom to add to it an antiseptic, such as eucalyptol or thymol. This is to preserve the jelly.

This lubricating jelly is useful for examinations in the office. If it is desired to make the jelly clear and transparent, it is better to add a large quantity of water, filter through muslin or asbestos fibre, and later evaporate to the requisite consistency. However, this is not necessary. The jelly is cheap and costs about 5 cents a quart. Irish moss is commonly used in this country by brewers—to lubricate throats, probably. The jelly may be put into lead paint tubes, which may be obtained from any can manufactory, or into small wide-mouthed glass bottles. The receptacles must, of course, be sterilized before using. Enough may be made at once to last throughout the year. Various proprietary preparations under euphonious names may be obtained; most of them are made from Irish moss or chrondrus. Oil, olive or paraffin, makes a good lubricant, but has the disadvantage of attacking rubber.

The lubrication must be applied to the catheter and to the urethra. The hands are washed and the left forefinger takes up some lubricant. This is roughly spread over the area of the meatus, coating its parts here fairly freely. This has the advantage of making a coating over the mucous membrane, so that, if the catheter does miss the meatus, it touches the lubricant. No gauze wipes or cotton sponges are used. It is impossible to wipe microorganisms out of the urethra, because the discharges are only driven further in.

The catheter is taken in the right hand which remains clean and well lubricated with the Irish moss jelly. The labia are held apart by the thumb and forefinger of the left hand which rests, palm downward, on the symphysis.

The catheter is then inserted about 1.5 cm., a finger's breadth, and held there with gentle pressure. The patient is then asked to take as long a breath as it is possible for her to take. This relaxes the sphincter and the catheter slips in without trauma.

After the insertion of the catheter for the first 1.5 cm., the sphincter immediately goes into reflex spasm and, if the catheter is forced in, the spasm becomes firmer and firmer. It is necessary, therefore, for the patient to turn her attention to the contraction of some other antagonistic set of muscles, the contraction of which releases the involuntary reflex spasm of the sphincter of the bladder and allows the

catheter to slip in almost of itself. It is very easy and very simple and is based upon the same principle as swallowing the stomach tube or bearing down in the passage of the rectal tube—relaxation of the sphincter.

The catheter may then be withdrawn until it can just draw off the urine and not enter the bladder, as is shown in the drawing of the catheter with the special aperture.

When the bladder contracts during the withdrawal of urine by the catheter, there is a simultaneous continuous movement which begins slowly and increases in speed toward the end of micturition. The longitudinal diameter, however, decreases more and quicker, than the horizontal. The more powerful longitudinal muscles would appear to contract more quickly and more strongly, than the circular fibres. The result of this is that, if a catheter is inserted too far, as the lateral-holed catheter must be, the bladder wall strikes it, before the urine is all out of the bladder. The apical-orificed catheter avoids this.

To prevent the necessity of catheterization, Frank[1] has recommended the injection of 15 to 20 c. c. of glycerin, which he calls a laxative for the bladder. This is injected, when urination is required. This is effective in some cases, but it causes some irritation and pain, as does glycerine on any mucous surface, rectum or urethra. Waldstein[2] uses bougies of glycerine 90 per cent. and neutral soap 9 per cent. for the same purpose. Both cause a little irritation.

An injection of sterilized paraffin oil is sometimes effective in retention. It is harmless and may be injected before catheterization. The syringe should be a blunt-nosed one and placed against the meatus and, while the patient takes long breaths to relax the sphincter, gentle pressure is made. In this way, some of the oil enters the bladder and a catheter is unnecessary. The glycerine injections sometimes cause too much irritation.

If catheter cystitis or trigonitis should occur, the sooner treatment is instituted, the easier it is to cure. The injection of a mild silver preparation is usually all that is necessary. A one-fourth of one per cent. nitrate of silver freshly prepared with 20 per cent. glycerine in distilled water may be used. Nitrate of silver is less irritating, provided the viscosity of the solution is greater than water. The thicker the solution of nitrate of silver, the slower the action and the less irritating the effect. For this reason glycerine and other substances are used. Silver nitrate is the most reliable of the silver preparations, provided it is freshly prepared. The lack of irritation of most of the newer silver salts and preparations depends upon their greater viscosity, slow action, and weakness of effect upon the tissue.

Treatment should be begun at the first signs of pain and pus in the urine. If the nitrate of silver-glycerine solution is not immediately effective, bladder washing may be added.

But the real secret of the abolition of catheter cystitis is its prevention. This is best done by a proper instrument with an aperture in the end which allows the urine to be drawn without the catheter entering the bladder. The catheter should be lubricated. The sphincter of the bladder should be relaxed before the catheter passes it, so that irritation and burning of the mucosa does not occur. This is best done by asking the patient to take a very long

[1] Frank: *Zentralbl. f. Chirurgie*, 1909 xxxviii, 2.

[2] Waldstein: *Gynaekol. Rundschau*, 1911, Vol. 1.

breath while the catheter is about a finger's breadth in the meatus. This allows the sphincter to relax and the catheter to slip into the bladder. In this way trauma is prevented, and without trauma catheter cystitis does not occur.

CHAPTER XVI.

PLACENTA PREVIA.

Introduction.—Placenta previa is one of the most dangerous complications of pregnancy. Its danger to the child is not less than its risk to the mother. More than half of all the children die at birth, and many survive in a weakened condition.

The frequency of placenta previa is variously estimated. From reports of clinics collected by me for two years in 183,389 labors, placenta previa was found once in 160 labors. Clinics, however, have more than their proportion of these cases and the ratio of occurrence in private practice is probably less.

Etiology.—The etiology of placenta previa is obscure. One known fact is that it is much more frequent in multiparae. My statistics show one primipara to nine multiparae. The more children the greater likelihood of placenta previa. The rapidity with which the labors occur also increases the probability of this complication. It has been suggested that changes in the uterine wall from atrophy or inflammation as a result of frequent or repeated pregnancies predispose toward placenta previa. Such conditions limit the amount of blood going to the placenta and cause it to spread over a larger area in order to get nourishment. This is borne out by the common occurrence of large surface and thinness of the placenta in this condition. The placenta spreads down and overlaps the internal os and so forms placenta previa. The mucosa of the isthmus and cervix responds less actively than that of the fundus to the decidual reaction, so that placenta is required to be thin and expanded. The decidual reaction, similar to that of tubal pregnancy, causes villi to grow deeply into the muscular bundles of the isthmus at cervix, often to penetrate almost completely the thickness of the wall.

The mucosa of the isthmus in contrast to that of the cervix shares in a most characteristic way in the decidual reaction, although the decidual swelling is only one-third of that of the body of the uterus. On the other hand, the isthmus more resembles the cervix in its muscular tissue and is, by passive stretching, more concerned in the course of pregnancy in the enlargement of the ovisac and is thus transformed into the lower uterine segment. The isthmus normally affords nourishment for the membranes; but, in placenta previa, the implantation seriously affects the condition of the wall. The embedding of the placenta has a destructive effect penetrating the thin decidua into the muscular layer in such fashion as to injure the wall of the isthmus, reducing its elasticity and contractile power.

The uterine wall thus thinned is easily torn and, having lost much of its elasticity, hemorrhage is common both before and after separation of the placenta. The placenta may be so adherent as to be separated with difficulty and with marked loss of blood. The cervical tissue is readily lacerated owing to its increased vascularity and the deep implantation of the villi.

This destructive action of the placental villi is more marked when the seat of the ovum extends into the cavity of the cervix and the ovum roots itself on the muscular tissue there. The process of thinning and

weakening of the lower segment of the uterus explains the proneness to laceration.

It is possible that placenta previa may be formed by fusion of the decidua reflexea and vera over the internal os; but this is probably the exceptional mode of formation, and a low implantation with cleavage of the decidua vera and obliteration of the os the common one.

Mortality.—A collection of cases treated in the last twenty years and during the antiseptic era gives 8,888 cases with 7.4 per cent. maternal mortality and 55 per cent. fetal deaths, considering all classes of placenta previa. Complete placenta previa had a maternal mortality of 16 per cent. and a fetal mortality of 72 per cent. In incomplete (partial or lateral) placenta previa, there was a maternal mortality of 5 per cent. and a fetal mortality of 60 per cent. Incomplete placenta previa occurs three times as frequently as does complete. A consideration of these statistics shows that complete placenta previa is three times more fatal to the mothers than is incomplete, and that approximately two-thirds of all children will die, although complete is also more dangerous to them. The apparent discrepancy in the fetal mortality percentage of the incomplete form, being greater than the combined, is due to the fact that all reports are not divided into these classes as may be seen in my detailed paper referred to in the footnote.[1]

A comparison with the results obtained in preantiseptic days shows a considerable drop in the maternal mortality (23.6 per cent. to 7.4 per cent.); but little or none in the fetal mortality (63 per cent. to 55 per cent.).

Many children die soon after birth in proportion to the degree of their prematurity. Mason and Williams state that, of 114 children born alive, 38 per cent. died within a few days. Of the children born alive at full term, 20 per cent. died afterwards; of children born alive at 8 months, 48 per cent., and of children born alive at 7 months, 71 per cent. died within a few days of delivery; and, as only 36 per cent. of all their children were born alive, it will be seen that the mortality of children is considerably increased after delivery. Zweifel in 178 cases of placenta previa, found that 78 children were born alive and of those weighing less than 2,500 gm. (5½ pounds) only nine left the clinic alive, and of those weighing more than that amount, 39 left the clinic alive, i. e., 41 per cent. of those born alive dying within a few days. Couvelaire also shows that the expectation of life depends upon the maturity of the child; thus of 17 infants weighing less than four and a half pounds only two survived, whereas of 19 weighing more than six and a half pounds, ten survived.

It may be seen from these reports that the chances of life of the child are very precarious, not only from the dangers of maternal hemorrhage, malnutrition, accidents of delivery; but also from the danger of dying after delivery from prematurity, weakness and exhaustion. The danger of death to the child is increased in direct proportion to its smallness of size and prematurity.

Complications.—Hemorrhage and its results are the chief danger in placenta previa. This bleeding usually occurs some time before full term and comes on as a dribbling of blood without pain. It quite often occurs

[1] These statistics have been detailed at length in *Surgery, Gynecology and Obstetrics*, June, 1911, pp. 546-561, and there has been added thereto Cragin's report of 223 cases. *Am. Jour. of Obstetrics*, July, 1911.

at night and the woman is awakened by a feeling of warmth at the vulvar parts. The first hemorrhage is not usually a severe one and is but seldom associated with straining or effort. The patient does not as a rule go into labor immediately following the hemorrhage. Of Füth's 726 cases treated by midwives, only 25 per cent. had pain immediately succeeding the hemorrhage and in the remaining 75 per cent. an interval of days, weeks or months occurred. All but three of the women applied for medical aid before delivery on account of the hemorrhage. Only 3 per cent. of the 726 women had no hemorrhage before labor pains occurred.

The first bleeding usually terminates spontaneously and leaves the woman but little weakened. However a second one is not long in coming and often there is a persistent dribbling, so very weakening to the patient. The second and succeeding hemorrhages are more likely to follow upon straining or effort. In placenta previa, approximately 70 per cent. of all deaths are due directly to hemorrhage and exhaustion, and the weakness and lack of resistance following the bleeding is indirectly responsible for many who died from infection, air embolism, shock, uterine rupture, and other causes. In Füth's series, there were 141 deaths, of which 98 died from hemorrhage and a large percentage of the rest from infection due to lessened resistance. The great danger is hemorrhage before, during and after labor, and treatment must be directed against it.

During labor, the natural straining with labor pains is one of the main dangers in increasing the bleeding. The hemorrhage will continue after the cervix has been stretched or dilated until the placenta is removed or pressure brought to bear upon the cervical vessels. The cervical vessels do not pass through the uterine contractile tissue but go directly to the cervix from the uterine artery and vein.

Postpartum hemorrhage also occurs in about 12 per cent. of all cases based upon recent series. This is more common in complete placenta previa and is probably due to the weakening and destruction of the cervical wall due to the imbedding of the placenta in that part. Hemorrhage after delivery often comes on at an interval after the birth of the baby. The delivery of the child causes an immediate fall in the blood pressure of the mother, but this fall is soon recovered and, when the pressure returns to its former level, the postpartum hemorrhage occurs.

In cases of postpartum hemorrhage, the placenta is often adherent to its site and requires to be brought away by manual extraction. This is frequently followed by a renewed rush of blood. In four of Warren's 14 cases of postpartum hemorrhage in this condition, the placenta was adherent, although there was no hemorrhage after delivery in two other cases of adherent placenta.

There is also danger of persistent and severe hemorrhage from cervical lacerations. These occur readily owing to the weakened condition of the cervical wall, its excessive vascularity, and softness. Often the laceration extends so high that it cannot readily be sutured, and packing is not of avail. The bleeding is often only dribbling in character, but may be free and severe.

Postpartum hemorrhage may occur in placenta previa treated by Caesarean section if the cervix has been dilated by labor pains previous to operation and, while the advisability of Caesarean section is doubt-

ful in any case, it is positively contraindicated where there has been cervical dilatation and hemorrhage.

Laceration of the cervix is the most common injury in placenta previa. It is most usually due to delivery of the head after version through a cervix which is not fully dilated. The friability of the cervix from placental erosion causes laceration to occur with readiness. It sometimes extends to become a uterine rupture and cause severe hemorrhage. Hauch in 240 cases found a considerable laceration in 11 with two deaths from hemorrhage.

Laceration may also be caused by manual dilatation of the cervix by Bonnaire's method followed by version and extraction. Of 171 cases reported by Bonnaire after this method, the cervix was lacerated in 20, in 5 the tear extended into the uterus and in 2 involved the vaginal wall. Of the patients with lacerations, 6 died. Laceration may also occur from the elastic rubber bag or hystereurynter, introduced into the cervix to stop hemorrhage. Of 144 cases treated by the elastic bag by Hauch, there were 9 lacerations and in the majority of these a weight of two pounds had been attached to the bag to hasten dilatation. In cases where the bag is inserted without any weight, laceration is not so common. The weight was only attached to the bag in those cases where there was considerable hemorrhage or where the bag did not completely control the bleeding.

Laceration of the cervix may also occur from the tearing out of the volsella forceps applied to the cervical lip for traction in inserting an elastic bag or in packing the cervix with gauze.

Abnormal position of the fetus is a not uncommon complication of placenta previa. The situation of the placenta, occupying as it does the space which should be occupied by the child's head, forces the head to be elsewhere. Müller in his statistics found 272 transverse and 107 breech positions of 1,148 cases. There was thus abnormal position in one-third (33 per cent.) of all cases. This malposition is, however, not always a detriment for it makes version easier, as the child is half turned already with the head out of the false pelvis.

The placenta is often adherent and this is the case more often in complete placenta previa on account of the more extensive infiltration of the cervical walls. In 160 cases in which this complication was noted, there was adhesion to a greater or less degree in 67 cases (42 per cent.). The placenta frequently requires manual extraction, even when broken into fragments by thrusting the hand through it to do version and breech extraction.

Plural pregnancy is more common in placenta previa than in the ordinary run of cases. Winckel states that, in his experience, twins are four times as common in this condition as customarily. Warren found twins twice in 94 labors where the usual ratio is 1 to 80 labors. In these cases, the twins are usually weak.

Diagnosis.—Hemorrhage is usually the first sign of placenta previa and comes on as a rule without straining or excessive effort. It rarely appears before the seventh month; but is more frequent during the last month of pregnancy. This hemorrhage as a rule comes before the labor begins; in about 75 per cent. of cases, there is an interval between the first hemorrhage and labor. Very few cases have no bleeding at all before labor pains begin. This first bleeding usually terminates spontaneously.

Examination of the woman at this time usually shows a cervix which is dilated

sufficiently to insert a finger and feel within the cervix the roughened outside surface of the placenta covering the os. The abrupt margin of the placenta may sometimes be felt through the abdominal wall above the symphysis and at the posterior vaginal fornix the rear margin may be palpated by the examining finger.

When the cervix will not admit one finger, the placenta may be felt between the fetal head and the finger as a soft intervening cushion. Attempts to produce ballottement drive this cushion against the head. The cervix is usually shorter and softer than in normal pregnancy. Manipulations of the cervix produce bleeding easily. It should be remembered that malposition is associated with placenta previa in approximately one-third of all cases. When the placenta is inserted in the cervix the lip of the os protrudes and the cervix ballooning often resembles an abortion impacted in the cervix. Sometimes the cervix is friable, but if it is open, crumbling masses may be felt, which will usually bleed at touch.

Treatment.—The treatment of placenta previa must be considered in general and then as to the various types of the disease.

The indications to be met are the control of hemorrhage and the delivery of the child without traumatism, mutilation, or delay.

In no condition in obstetrics is delay so dangerous to mother and child as in placenta previa. Delivery should follow the first hemorrhage. The only exception to this rule is where the patient can be put to bed in a hospital and carefully watched. Delay is then permissible as long as the pulse is below 100, and the mother and child in good condition. Delay is, even then, not without danger, but often the intense desire for a live child will excuse the chances taken.

The improvement in results comes not so much from any method of treatment as from early delivery, and early delivery is as advantageous to the child as to the mother. Delivery should immediately follow upon complete dilatation of the cervix, but delivery should be without traumatism.

The danger of hemorrhage is increased by strong internal contractions and the probability of cervical laceration is much increased. The ideal course in placenta previa is dilatation of the cervix with mild labor pains and little natural straining. For this reason if pains are strong, particularly if an elastic bag is inserted, it is usually well to control them by a hypodermic of morphine, gr. ⅙ to ¼, and atropin, gr. $^1/_{100}$. Atropin is a useful uterine sedative and has a distinct effect in preventing severe contractions. As long as the membranes are unruptured, the greatest safety of the mother lies in prohibiting strong pains or straining.

If hemorrhage is severe, hypodermoclysis or venous transfusion should be done. It should be remembered that normal saline solution does not consist of one dram of sodium chloride to a pint of water; but other salt should also be included. Evil results have been reported from using sodium chloride alone. A useful formula is as follows: Sodium chloride 9.0 gm., calcium chloride 0.1 gm.; potassium chloride 0.25 gm. to one liter of water.

The choice of anesthetic is of considerable importance. Anesthesia is not as a rule required for the insertion of the elastic bag; but when version and extraction or other operations must be done, anesthesia is necessary. Chloroform should be given with great care in the presence of hemorrhage, particularly if that hemorrhage is sudden. I have come to fear it greatly in placenta previa and always substitute ether

where possible. The pregnant woman does not bear ether as well as chloroform; they are apt to be troubled with mucus and bronchial irritation, possibly due to laryngeal congestion.

Still the danger of sudden collapse and shock is so great in placenta previa that ether should be the anesthetic of choice.

It is important to hasten to arrest the hemorrhage and then deliver the woman without haste and without force. Because it is important to hasten to arrest the hemorrhage, it does not follow that delivery should be hastened.

In considering the treatment of complete placenta previa, it should be remembered that we have to do with a disease which under the best clinic auspices kills one in six of the mothers and about three out of four babies. The greatest danger to both mother and child is from hemorrhage and to it must the treatment be directed. The chances of saving a child are so small that the mother's risk must not be increased on that account. Delay in delivery after the first hemorrhage but weakens the child and increases the maternal risk.

The child is premature in 60 per cent. of all cases and death after a few days occurs in from 15 to 71 per cent. of all babies, depending upon the degree of prematurity, so that the chances of life for the child are not great in complete placenta previa.

The danger from hemorrhage is not only from collapse after one or two hemorrhages, but from sudden shock after repeated small hemorrhages. All surgeons know how little resistance those patients have, who suffer from repeated hemorrhages as from uterine fibroids, and placenta previa cases are no exception to the rule.

For these reasons then, the indication for treatment of complete placenta previa is immediate stoppage of the hemorrhage with little consideration for the life of the child.

When the cervix is fully dilated, the indication is clear. Immediate delivery of the child controls the hemorrhage and offers the child the best chance of life. Delivery may then be done by Braxton-Hicks' version and immediate breech extraction. This should be done carefully and slowly so as not to cause any mutilation of the cervix or perineum.

It is usually well, if condition of the patient allows, to dilate the vagina and stretch the perineum with the hand. This makes the difficulty of breech extraction much less. If the placenta completely covers the dilated cervix, it is better, when thrusting the fingers into the uterus to do the bimanual version, to attempt to pass two fingers around the anterior lobe of the placenta under the symphysis rather than through the centre of the placenta. The risk to the child is increased by piercing of the placenta by thrusting the hand through the centre and, as the geometric centre of the placenta hardly ever coincides with the centre of the cervix, two fingers can usually be passed around, and they are sufficient to do the bimanual version. In case the edge of the placenta cannot be passed, the obstetrician can always fall back upon piercing the placenta although after this procedure hardly a single child survives, so it is useless to try to hasten the extraction of such a child.

Extraction should immediately follow version only when the os is fully dilated or nearly so, because of the danger of cervical lacerations and uterine rupture.

When in central or complete placenta previa, the os is undilated, immediate control

of the hemorrhage is more difficult. The amount of the dilatation of the cervix is not sufficient to allow the passage of the fetal head and the bleeding must be controlled until the proper dilatation is obtained. This control of hemorrhage may be obtained in one of three ways: (1) by Braxton-Hicks' version, bringing down one foot so that the fetal body acts as a tampon and delayed extraction; (2) by the use of the inflatable elastic bag of Champetier de Ribes; or (3) by tamponage of the cervix with gauze.

If the child is dead or premature, version with delayed extraction answers well. It usually sacrifices the child, but in most cases controls bleeding. If the cervix is half dilated, version with delayed extraction is commonly successful, because the cervix is usually soft and the half breech causes dilatation within a short time.

If, however, the child is alive and the os small or not readily dilatable, the choice of treatment must be among the three, with the preference to the elastic bag, where possible.

The elastic bag or hysteurynter gives good results, provided certain conditions are observed. First the operator must be skillful in its use and observe all antiseptic precautions. The danger of infection is said to be increased but, in 246 cases treated by the inflatable bag, Hannes found only 0.9 per cent. mortality from infection; so that it is evident that in good hands the mortality from infection is even less than in other forms of treatment. Second, the bag must be introduced within the ovum. If the bag is placed outside the membranes, the maternal mortality is very much greater, as is shown by the report of Hauch of 96 cases, in which the bag was introduced outside the ovum with a mortality of 15.6 per cent., and of 48 cases in which the bag was introduced within the ovum with a mortality of 2.1 per cent.

In cases where the placenta does not completely cover the half dilatated os, the introduction of the bag within the membranes is comparatively easy; but when the placenta completely covers the os and the bag cannot be passed around the anterior lobe, it becomes a question whether it is better to pierce the placenta with the bag or to do a bimanual version by the insertion of two fingers aided by outside manipulations with delayed extraction of the child after the foot had been pulled down.

The choice between these two methods under such circumstances will depend upon the condition of the mother and the child. The bag treatment improves the chances of the child; but if the child is dead or premature, this does not have weight. A premature child, being small with a soft cranium, is not so likely to tear the cervix. If the mother is in great weakness from hemorrhage, delayed extraction after version will probably stop the hemorrhage more quickly, as, with the bag after the os is dilated, delivery must still be effected.

Altogether the rule may be laid down that, when the os is partially dilated with a live child, the bag treatment offers the best results when it can be introduced into the ovum and when urgent symptoms are not present. In 387 cases where the bag alone was used and introduced into the ovum where possible, the maternal mortality was 5 per cent. The most successful of this number was Hannes' 143 cases treated by the bag alone with no deaths from hemorrhage, although there were 8 deaths from other causes, as previous infection, eclampsia, etc. The hystereurynter reduces the mortality of the children from 70 per cent. to 30 per cent. according to figures col-

lected from these series. The greater hope of life that the elastic bag or hystereurynter gives the fetus may be judged from Thies' report of the results from Bumm's clinic. Taking all births into consideration, the fetal mortality was as follows: spontaneous delivery, 20 per cent.; vaginal gauze plugging, 33 per cent.; combined version with slow extraction, 80 per cent.; combined version with rapid extraction, 64 per cent.; vaginal Caesarean section, 50 per cent.; hystereurynter or elastic bag, 14 per cent.

Combined version with delayed extraction is very fatal to the child and should be restricted as much as possible to urgent cases where the mother's condition demands immediate control of the hemorrhage. If the interest of the mother alone is to be considered, Braxton-Hicks' version and delayed extraction remain the safest method if the cervix is partially dilated.

There are certain necessities for successful treatment by the hystereurynter. The bag must be of large size, as big as a normally large fetal head. It should measure 10 to 12 cm. in diameter and contain from 500 to 600 cm. (about 20 oz.). The bag treatment in this country has achieved a bad reputation because the small de Ribes bag, intended for induction of labor, has been used and inserted outside the ovum.

The bag should be inserted within the membranes with a special forceps for the purpose, and with antiseptic precautions. The bag may be boiled and kept ready for use in glycerine which will preserve it, as rubber is apt to crack and spoil if kept dry. It may be boiled with the glycerine in a large preserve jar and the jar wrapped in a sterile towel ready for use.

The bag remains in position for 3 to 5 hours as a rule. If the control of the hemorrhage is good, no weight need be attached; but, if the bleeding is not perfectly stopped, a 2 lb. weight may be attached on a cord running over a pulley, as in fracture extension, on the end of the bed. If the weight is attached, a stout elastic band should intervene between the bag and the cord of the weight. In this way, sudden pull on the uterus, caused by the patient drawing away from the weight, is avoided and the danger of cervical laceration is lessened. The weight should only be attached to those cases where there is considerable hemorrhage or labor is unduly prolonged. After the use of dilating bags, the operator should be necessarily cautious in doing version and breech extraction, as there is danger of uterine rupture.

The advantage of the bag is that compression is applied directly to the placenta forcing it back into its place. Tamponage on the contrary forces the placenta away from its bed and tends to increase hemorrhage. The bag acts as a tampon, as a labor promoting element, and as a gentle dilating force.

Cervical tamponage is a makeshift method, only to be resorted to when the bags are not at hand. It is often ineffectual in controlling hemorrhage and of little use as a cervical dilator. The percentage of infection after packing is larger than after any other method. It is useful when the cervix is partially dilated and hemorrhage must be controlled until other measures are undertaken.

Antiseptic moist gauze should be used and it is well if the antiseptic is a styptic also.

The gauze may be left until the cervix is sufficiently softened and dilated to allow a bag to be inserted or bimanual version to be done. The packing is not effective unless the gauze is packed well within the

cervix and up against the placenta and the vagina packed full of gauze also in order to afford support and counter pressure. The gauze should be moist as it then may be packed more firmly and care should be taken not to bruise the vaginal mucosa in the manipulation. A vaginal speculum should be introduced with the patient upon a table and in a good light, the cervix should be caught and steadied with a bullet forceps and the gauze packed firmly. The patient should be put to bed and watched carefully for evident bleeding or signs of concealed hemorrhage.

Maison, in a report of 154 cases treated by various methods, had the highest mortality, 25 per cent., with tamponage and lost 70 per cent. of the children. The deaths were from bleeding and infection.

Other methods do not show as good results as the ones referred to. Bonnaire's method of bimanual dilatation of the cervix and immediate delivery has a higher mortality than the previous methods. He has reported 171 cases treated by this method with a mortality of 18 per cent. The disadvantages of the method are the amount of time required to dilate the cervix, twenty minutes to one hour in Bonnaire's hands, with constant loss of blood, the danger of laceration of the cervix, and the difficulty of completely dilating the cervix so that the head may come through without traumatism.

Steel dilators after the type of Bossi's instrument are very dangerous and only of use to dilate the cervix sufficiently to allow version to be done or to insert a bag. A de Ribes bag may usually be inserted through a cervix admitting two fingers, and to obtain this amount of dilatation the Goodell two-pronged dilator does as well as the more complicated and expensive instrument of Bossi.

Caesarean section, much vaunted of recent years by surgeons, is not favored by obstetricians. Holmes' collection of Caesarean sections for placenta previa gave a maternal mortality of 20 per cent. and an ultimate fetal mortality of 64 per cent. Little encouragement here to advocate the operation. Jewett, in a later paper, collected 95 cases, not including Holmes' collection, wtih a maternal mortality of 11.5 per cent. and a direct fetal mortality of 34 per cent., the ultimate fetal mortality of children dying in the puerperium not being stated. The combined series give a maternal mortality in 125 cases of 13.6 per per cent.

The ease with which Caesarean section can be done deludes operators into the belief that it is a simple operation and without mortality; but the facts remain that the mortality of all classes of Caesarean section is, in 3,000 collected cases, 7 per cent. How much greater will the dangers be in placenta previa where the patient, weakened by hemorrhage and contaminated by examinations, is unfit to stand such a radical surgical procedure. To treat these cases by Caesarean section is but to add another greater danger to that already existing.

The only excuse for a Caesarean section in any condition is to save a living child and, if there is a direct fetal mortality of at least 34 per cent. with a probable ultimate mortality one-fourth greater, a living child will hardly be obtained in as many cases as in the bag treatment and the safe method of version and delayed extraction will save more mothers. It is doubtful whether the 125 cases with 13.6 per cent. mortality represents the true estimate of mortality, as no large clinic statistics have yet been reported and, with isolated cases, it is human

nature to report successes and allow failures to be forgotten.

When Caesarean section is not done until the end of the period of dilatation, there is no security against a fatal after hemorrhage, for, by that time, the insertion of the placenta in the isthmus or cervix has already been stretched and, with defective contraction of this segment of the uterus, hemorrhage is likely to follow. The hemorrhage comes mainly from the lacerated vessels in the upper part of the cervix and, with a Caesarean wound in the uterus, this would be difficult to control by gauze packing or other means.

Vaginal Caesarean section has been advocated in placenta previa with an undilated cervix. Bumm was its most weighty advocate; but now he, Sigwart says, has abandoned the operation. The amount of hemorrhage is greater from a cut wound than from a torn one and, in these incisions of vaginal Caesarean operation, the bleeding is sometimes severe and difficult to control. If the placenta is situated posteriorly, it may be possible that anterior hysterotomy may be of value, but it is difficult to decide when this condition occurs. Also, if the placenta is posteriorly situated, the elastic bag may be passed around the anterior lobe.

Incisions into the cervix, when the os is not fully dilated are, however, occasionally of use, although they need not go so far as to include the surface of the uterus above the vaginal vaults.

In the treatment of the incomplete form, the mainstay of treatment is the elastic bag. Its advantages are that it can be easily inserted and it controls the hemorrhage. The placenta, not covering the os completely, does not obstruct its passage; the membranes are easily ruptured and the elastic bag may be inserted within the membrane, much reducing the mortality.

Version and breech extraction must be reserved for those cases of incomplete placenta previa in which the os is fully dilated with unruptured membranes or urgency of delivery is demanded. The greater possibility of obtaining a living child in incomplete placenta previa renders it expedient that all possible means should be taken to this end.

When the insertion of placenta is high in the uterus and the membranes present at the os, the hemorrhage may sometimes be controlled and labor hastened by rupture of the membranes. This gives the best chance of a live child.

The treatment by rupture of the membranes alone, however, should be confined to mild cases with a high insertion of the placenta. The main reliance in the treatment of incomplete placenta previa should be the large elastic bag, 10 to 12 cm. in diameter and with a capacity of 500 c. c. of water. Version and breech extraction should be reserved for those urgent cases with a fully dilated cervix and much bleeding.

The dangers of placenta previa by no means cease with delivery of the child, but in a large proportion of cases, hemorrhage occurs after labor. This bleeding does not as a rule occur immediately after delivery, because of the fall in blood pressure coincident with the birth of the child; but usually takes place within an hour. This delay of the hemorrhage makes it of a most insidious and dangerous character. A very large percentage of all deaths in placenta previa are due to this form of hemorrhage. In Hammer's series, three of eight deaths were from postpartum hemorrhage due to

atony of the uterus. In Warren's series of ninety-four cases, postpartum hemorrhage was present in 15 per cent. and, of six deaths in all, two were from this cause.

It is, therefore, necessary to take measures to prevent the occurrence of this hemorrhage. A dose of one of the good preparations of ergot should be given hypodermatically immediately after delivery of the child. It is better to use one of the physiologically tested preparations, for much of the ergot upon the market is inert. Pituitrin, an extract of the pituitary body, is very efficient in stimulating the uterus to contract and has been used with good success by Foges and Hofstatter in sixty-five cases of postpartum hemorrhage. The uterus contracts firmly and remains in that condition for some time. It promises to be useful in placenta previa.

The question of uterine packing with antiseptic gauze to prevent hemorrhage immediately after delivery is an important one. If a patient is in a hospital where she can be carefully and minutely watched, and if the uterus has contracted well, uterine packing may not be necessary; but if the woman is delivered in a house where the preparation for packing would involve some delay, or if the woman is weak from bleeding and can spare no more blood, uterine packing should be done as a prophylactic against hemorrhage.

In other words, the uterus should be packed with gauze to prevent hemorrhage, or preparations should be made so it can be done instantly in case hemorrhage should begin. After delivery in placenta previa, no patient should be left without constant medical supervision for several hours after delivery.

REFERENCES.

1. MAISON and WILLIAMS. *Boston Med. & Surg. Jour.*, June 3, 1909.
2. ZWEIFEL. *Muench. Med. Woch.*, Nov. 19, 1907.
3. CONVELAIRE. *Ann. de Gyn. et d'Obstet.*, Aug., 1910.
4. FUTH. *Zentr. f. Gynak.*, 1907, 12.
5. WARREN. *Lancet*, Feb. 3, 1906.
6. HAUCH. *Mon. f. Geb. u. Gynak.*, 1910, xxxi, 5.
7. BONNAIRE. *Presse Med.*, 1909, xvii, 66.
8. MULLER, L. *Placenta Praevia*, Stuttgart, 1877.
9. HANNES. *Zeit. f. Gynak.*, 1909, 3.
10. THIES. *Mon. f. Geb. u. Gynak.*, 1909, xxix.
11. MAISON. *Zentr. f. Gynak.*, 1910, 18.
12. HOLMES. *Jour. Amer. Med. Assn.*, May 20, 1905.
13. JEWETT. *Amer. Jour. Obstet.*, June, 1909.
14. SIGWART. *Zentr. f. Gyn.*, 1910, 28.
15. HAMMER. *Munch. Med. Woch.*, 1, 35.
16. FOGES AND HOFSTATTER. *Zentr. f. Gynak.*, 1910, 46.

CHAPTER XVII.

OVARIAN PREGNANCY, WITH REPORT OF A CASE.

Introduction.—The occurrence of ovarian pregnancy was first proven by Catherine von Tussenbroek who accidently discovered a case while making pathological examinations. She made her examination and report of a specimen handed her by Kouwer. This was the first complete demonstration of ovarian pregnancy in 1899. Since that time a number of cases have been reported and all that are well examined and undoubted are collected in a table in this paper. The first nineteen cases were collected in Norris' table in 1909, and nine cases have been added to that table including the one here reported. An example of the fact that if an operator is on the watch for this condition it is more likely to be found is that of 28 cases, two each are reported by Webster, Norris and Miscolitsh.

Diagnosis.—The requirements of an undoubted ovarian pregnancy are that (1) the tube on the affected side be intact, (2) the fetal sac occupy the position of the ovary,

(3) it must be connected to the uterus by the utero-ovarian ligament, (4) definite ovarian tissue must be found in the sac wall and at different places in the sac wall.

These conditions are required to distinguish ovarian pregnancy from advanced tubo-ovarian or abdominal pregnancy where the ovarian tissue is plastered and flattened over the sac wall and so incorporated in the sac wall as to be impossible to distinguish whether the pregnancy is ovarian or not.

It is very difficult to say whether certain advanced ectopic pregnancies are tubal or ovarian in their origin, and it is almost impossible to prove their original site. For this reason, in this series so collected, all advanced and dubious cases must be excluded.

For an exact diagnosis microscopic examination must show evidence of pregnancy within the ovary, i. e., chorionic villi must be found. The presence of decidual cells alone is not sufficient evidence of ovarian pregnancy; for decidual cells may be present in various places, such as the broad ligament over peritoneal surface in ectopic pregnancy. Also, it may be possible that the mere presence of decidual cells in the tube is not evidence that gestation has occurred there and not in the ovary, as it is possible that such cells may exist in the tube during an ovarian pregnancy. Decidual cells may sometimes be found in the uninvolved tube when a tubal pregnancy is in the opposite side, and again as may be seen from the discussion of bilateral tubal pregnancy, decidual cells sometimes exist in a tube containing blood when no other signs of tubal pregnancy exist. So that decidual cells in the tube are no evidence for or against the presence of an ovarian gestation.

The occurrence of hemorrhage from the ovary sometimes occurs without ovarian pregnancy and from ovarian hematoma. Hedley[1] has reported 18 such cases with free peritoneal blood, and has described the course and pathology of the condition. Savage[2] has divided hematomata of the ovary into two types: (1) hematoma of the Graffian follicle, (2) hematoma of the corpus luteum. In the first type, he found the wall of the hematoma was lined by a single layer of epithelium which he regarded as a membrana granulosa, lying on a basement membrane and external to these were the two layers of tissue which appeared to correspond to the theca interna and theca externa. The cells of the inner layer showed early lutein cell formation and there were ill-developed Graffian follicles near the cavity of the hematoma and some opening into it.

The second type—hematoma of the corpus luteum—had an outer cell of ovarian tissue which was for the most part congested; the inner part of the wall showed newly formed fibrous tissue, poor in cells, and near to the lining in between the longitudinal strands of this tissue, there were blood extravasations, many round cells and many large rounded or cuboidal cells containing yellow coarse granules. The nuclei of these cells were relatively small and, in many instances, seemed to be crowded towards the periphery of the cell. The cause of these hematomata is supposed to be abnormal congestion of the ovary with hemorrhage into immature follicles.

It has been suggested that it might be possible that ovarian pregnancy be a cause of some of these hematomas. This seemed

[1] Hedley.

[2] Smallwood Savage. *Brit. Gyn. Jour.*, xxi, 285.

possible because several cases, as von Tussenbroek's and Kelly and McIlroy's, were discovered accidentally in the routine examination of surgical specimens. However, search does not bear this out. Still the similarity of the picture at operation between ovarian hematoma and ovarian pregnancy, both causing hemorrhage, is very striking and requires careful examination to distinguish one from the other.

The clinical course of ovarian pregnancy has nothing to distinguish it from ectopic pregnancy generally. The rupture occurs in the same way; the shock and collapse may be as extreme and the hemorrhage is sometimes great. The condition is chiefly of interest because of its rarity.

Clinical Report—Mrs. L., age 36, para I. Small woman. Good previous history. Severe cystitis 5 years ago. Operated upon by Dr. Ellice McDonald for retroversion by internal round ligament operation. Operation was done four years ago. When seen complained of pain on left side. Menstruation has been absent for 37 days. Thought she was pregnant. Tenderness on right side on abdominal palpation. Tenderness on movement. Uterus contracted and firm, not enlarged. Cervix slightly patulous. No softening of cervix, no contractions of the uterus. Hegar's and McDonald's signs not found. Light colored, bad smelling discharge from cervix. Doughy mass was felt posteriorly and to the left slightly displacing the uterus. Diagnosis was made of ectopic pregnancy which was concurred in by Dr. H. M. Painter, who was called in consultation. Immediate operation, Dr. Painter assisting. Free bloody fluid was found in the pelvis and on the left side in the region of the ovary and attached to the ovarian ligament was found a thin walled cyst about the size of a large walnut from the interior of which was attached a stringy piece of dark reddish membrane (decidual remnant). This was fixed to the inner lining of the cyst way. This membrane has evidently before the rupture covered the interior of the cavity within the ovary. The capsule was very thin in parts, varying in thickness. One part was densely infiltrated with blood.

The tube was apparently normal and was removed with the ovarian mass. There was no trace of a fetus. Microscopic examination showed that the walls of the cyst were formed of ovarian tissue with several corpora lutea at various stages. Numerous Graffian follicles were found. Numerous chorionic villi could be seen, although in many sections obscured by fibrin and clots. In the walls of the capsule there were areas of hemorrhages in the stroma. There was a moderate round-celled infiltration in places. Pigmentation was present almost in all sections of the ovarian stroma. Here and there were groups of large pigmented cells with large nuclei. Here and there were budlike masses with densely staining multiform nuclei or protoplasmic cells with nuclei. The tube was normal. Diagnosis —ovarian pregnancy.

CASES REPORTED IN LITERATURE.

ANNING & LITTLEWOOD.—Trans. Obst. Soc., London, 1901. xliii, 14.
WEBSTER.—Trans. Amer. Gyn. Soc. 1904. xxix, 65.
HEWETSON & LLOYD.—*Brit. Med. Jour.* 1906. Sept. 8.
VAN TUSSENBROEK.—*Ann. de Gyn. et Obst.* 1899. Dec.
DE LEON & HALLMAN.—*Rev. de Gyn.* 1902. June.
FREUND & THOME.—*Virchow's Arch.* 1906. Jan.
KELLY & McILROY.—*Jour. Obst. & Gyn. Brit. Emp.* 1906. June.
THOMPSON.—Trans. Am. Gyn. Soc. 1902, xxvii.
WEBSTER.—Trans. Amer. Gyn. Soc. 1907, xxxii.
BOESBEECH.—*Monat f. Geb. u. Gyn.* 1904, xx, 613.
JACOBSON.—Contribution to the Science of Med. & Sur. N. Y. Post-Grad. School and Hospital. 1908, 24.
MISCHOLITSCH.—*Zent. f. Geb. u. Gyn.* 1903, 49, 500.
NORRIS & MITCHELL.—Surg. Gyn. Obst. 1908, May.
KERR, J. M. MUNRO.—Proc. Roy. Soc. Med. 1908, I. 9.
GOTTSCHALK.—*Zent. f. Gyn.* 1886, x, 727.
BANDEL.—*Beitr. z. Klin. Chir.* 1902, xxxvi, 657.
FRANZ.—*Hegar's Beiträge.* 1902, vi, 70.
SCHICKELE.—*Beit. z. Geb. u Gyn.* 1906, xi, 307.
RUBIN.—*Amer. Jour. Obstet.* 1911, May.
LEA.—*Jour. Obst. & Gyn. for B. E.* 1910. Sept.

TUEEDY.—*Jour. Obst. & Gyn. for B. E.* 1910, Feb.
McDONALD, N. S.—*Jour. A. M. A.* 1909, lii, 1253.
BARROWS.—*Amer. Jour. Obstet.* 1910, Dec.
YOUNG & RHEA.—*Boston Med. & Surg. Jour.* 1911, Feb. 23.

OCULAR DEFECTS AND THEIR RELATION TO THE HEALTH AND WORK OF THE STUDENT.

BY
M. DRESBACH, M. D.,
Cornell University, Ithaca, N. Y.

Within recent years there has been a continual improvement among our colleges and universities in the supervision of the athletic activities of undergraduates, and in a number of institutions there is exercised the larger function of providing medical advice, in addition to physical culture, for the entire student body. At some places these advantages are enjoyed by the student throughout his college course; at many, however, such assistance is very limited. In thus guarding the health of their young men and women our institutions have assumed a certain, considerable responsibility, the discharging of which becomes the more difficult as this service is made more efficient. The work of the medical examiner's department is heavy, but it yields results of great value to the student and offers problems of interest to the physician; among these problems, those having to do with ocular defects are very important, and it is to some of these that I wish to direct the reader's attention.

Much has been said about the effects of school life upon the eyes. There can be no doubt that the work of civilizing mankind has been a powerful factor in the astonishing increase of ocular defects. Many forget, however, that the eyestrain resulting from such defects can in turn be the cause of ill health, eventually, by producing functional disturbances in various organs, thus lowering the bodily resistance to agents that produce actual disease.[1] The occupation of the student, namely, the pursuit of studies during a number of years, is directly dependent upon the use of eyes, which, as will be shown, are ametropic in most cases, that is, not normal in their refraction of light.[2] It can be confidently affirmed that eyes handicapped by these refractive errors, usually of low degree, are almost solely the predisposing cause of the occupational diseases of students. There is a growing impression, too, that lateral curvature of the spine is important as a cause of nervous strain. This deformity is present to the extent of 85.6 percent among our undergraduates. As will be seen later, it is closely associated with refractive errors in its origin, though it has other causes.[3]

In this paper I have not set out to trace all human ills to ocular defects, as some are unjustly accused of doing, but I desire to consider candidly the following subjects: (1) some fundamental facts about ordinary ocular defects and their correction; (2) the prevalence of refractive errors, their effects upon vision, and

[1] Medical literature, of the past decade especially, is replete with illustrative cases, but the far reaching effects of refractive errors have been most ably set forth in the extensive writings of Dr. G. M. Gould.

[2] In another paper ("Examinations of the Eyes of College Students," *The Medical Record.* Aug. 3, 1912), I have published our methods and detailed the findings in our eye tests (4,777 in number, during three years preceding 1912). The statistics are merely qualitative, representing diagnoses and not exact measurements. In practice the following steps are carried out with each eye: (1) inspection for external signs of disease; (2) determination of visual acuity by means of test letters; (3) examination for refractive errors—myopia, hyperopia and astigmatism; (4) tests for imbalance of the extra-ocular muscles; (5) testing the power of accommodation.

[3] "Lateral Curvature of the Spine and Round Shoulders," Lovett, 1912.

on the origin of "squint"; (3) the symptoms of eyestrain: (a) how they originate, (b) what they are, (c) the problem of their relief; (4) the deplorable condition of refraction work in this country; (5) the relation of eyestrain to health and success. Before taking up the main points of our subject, it may be well to review some of the fundamental facts relating to the refraction of light by the ametropic eye.

In the myopic, or near-sighted, condition, the eye is too long and the image is formed in front of the retina when vision is directed to a distant object. Hence, there is blurring and indistinctness of sight. If the object is brought near enough for the image to fall upon the retina, vision may be distinct, providing it is a simple myopia, that is, one not complicated by astigmatism; and even in myopia combined with astigmatism the image may be pretty sharp as a result of reflex constriction of the pupil if the defect is not too great. A point of importance is that in thus obtaining clear vision by holding the object near to the eyes the muscles that are ordinarily brought into action in focussing are not subjected to great strain in simple cases of myopia, and for this reason the trouble is often overlooked. The condition is corrected by concave glasses.

In hyperopia, or far sight, a quite different condition obtains. The eye is too short, or too small, and rays, even from distant objects, focus behind the retina. It is necessary in this instance that the lens of the eye become more convex to converge these rays upon the retina. It was shown a good many years ago by the celebrated scientist, von Helmholtz, that this increased convexity of the lens, in the mammalian eye, is brought about by the action of the ciliary muscles, which are so arranged that when they contract they lessen the tension on the suspensory ligament that is attached to the lens and it then bulges forward by virtue of its own elasticity. This means, then, that in the farsighted eye muscular effort is always being made in focussing the light rays, and it follows that the nearer the object is to the eye the greater must be the effort made in forming a distinct image. The result is that far sight frequently produces a much greater strain than does near sight, and the consequences are often serious. Distant vision may be poor in some cases of hyperopia, so that the farsighted person may think he is near sighted. Convex lenses are required to neutralize the defect.

In astigmatism we have to do usually with a curvature deformity of the cornea. Theoretically, this should be a perfectly curved surface so that the pencil of rays would traverse the eye as a cone of light. The fact is, however, that such is rarely the case. In the great majority of eyes in civilized races the cornea is more or less distorted. It refracts the light unequally in different planes; hence, the image is indistinct. The blurring may be decreased by constriction of the pupil, but there is nevertheless some strain thrown upon the ocular mechanism for this involves muscular action, and it is known, moreover, that, in spite of the fact that distinctness of vision may be perfect in many cases, the resultant symptoms may be very severe. I shall return to this point later. Now, depending upon the type of curvature defect, the astigmatism may be myopic, in which case rays in a certain plane will focus in front of the retina; or, they may focus behind the retina, producing a simple hyperopic variety. Furthermore, the astigmatism may be, and usually is, combined with near-sight or far-sight, produced as above described. The condition

is then known as compound myopic or compound hyperopic astigmatism, as the case may be. Sometimes an eye is myopic in one plane and hyperopic in another, the two abnormal planes of curvature being at right angles to each other. This is known as mixed astigmatism. Finally, the two eyes may have quite different curvature defects, one being myopic and the other hyperopic, for example. In fact, they nearly always differ in the amount of curvature or in the plane in which the defect lies. This condition of unlike refraction, known as "anisometropia," adds much to the difficulty of securing binocular vision when a certain limit, differing in individual cases, is passed. It is a very common defect and is one of the most potent causes of eyestrain.

It is difficult to account for this asymmetry of the two eyes. It is believed by many that pressure of the eyelids upon the cornea is the main cause of its distortion. This pressure of the lids is increased in approximating them to exclude excessive light, a fact in accord with the greater prevalence of astigmatism in the vertical plane than in the horizontal. An explanation of curvature defects in the horizontal and in oblique planes is not so apparent. In any case, astigmatism is treated by concave or convex cylindrical lenses.

We may now turn our attention to the frequency of various types of refractive errors and certain related conditions. Our statistics[1] show that the great majority of our students are hyperopic, and it is interesting to observe that a large per cent (40) have never had their eyes examined. It is just among these students that one will find many serious cases. It is commonly believed that if vision is good the eyes must be all right, whereas, the fact is that some of our saddest cases are among those who have excellent vision. In such instances it is the constant strain, ever so slight, thrown upon delicate nervous and muscular mechanisms of the eye, with consequent disturbances of the nervous system, that brings about disastrous results. This point cannot be emphasized too strongly. The occupation of the student is prone to overwork the eyes. Our statistics show this, for we find that among our regularly enrolled students at least 25 per cent have eyestrain, and we find the highest per cent of failing eyes among the students of the technical courses, such as mechanical engineering, where much close work is required. These young men tax their eyes much more than do those who come mainly from rural districts, for example, and whose work is largely out of doors. Among these we find only 13 per cent of eyestrain cases, yet there are many with marked ocular defects. A number of these students from the country developed eyestrain symptoms during their twelve weeks' course in the university. Another interesting thing is the greater per cent, (17 as against 8) of myopia. This suggests a few words about near sight and its treatment.

Myopia is such a common defect that people generally regard it as of little importance. It may or may not be a dangerous disease. It depends upon the type of myopia. Some oculists would say that it is always serious as it distinctly limits the field of vision. Certainly, in what is known as "progressive" myopia we have a very

[1] Among those not wearing glasses, 87 per cent. were hyperopic. Ten per cent. of these had visual acuity distinctly subnormal, often far below the standard. Of those wearing glasses, and hyperopic, 32 per cent. had subnormal acuity. It is of interest that these figures are much higher than those of similar reports from European countries, Germany for example. Myopia is much more prevalent among students there than it is here. Among our Chinese students it reaches about 60 per cent.

dangerous condition, for it may lead to total blindness. Hence, it demands the most careful treatment. It is pitiful to see how some cases of myopia are handled, or even allowed to go untreated entirely. Many instances of such neglect of eyes could be given, as could also many examples of the bungling work done in attempting to clear up the eyesight of patients with this defect. So many times the astigmatism associated with the disease is not detected, or is disregarded, and simple concave lenses are given to improve the sight with the consequence that the myopia continues to increase.

Attention is called to the prevalence of unequal sharpness of sight in the two eyes. In this connection I wish to speak particularly of two important related conditions which result from abnormal refraction, namely, unilateral decline of visual acuity and anomalies of the external eye muscles. There can be no doubt that when curvature defects of the cornea reduce the sharpness of the image in one eye to a certain degree, which differs in different individuals, there is likely to be a concomitant decrease in the sensitiveness of the retina in that eye and also a tendency for the eye to "squint." Prof. C. von Hess, of Munich, has recently reviewed and discussed this matter lucidly and extensively in his work[1] on anomalies of refraction and accommodation in the human eye. In this work and in American treatises there is abundant evidence that decreased visual acuity and strabismus may result from the cause just mentioned. In our observations here we have been impressed with the number of cases in which vision has declined so gradually in one eye that the individual did not recognize the defect until the tests were made; and often, too, the sight has been found markedly reduced in both eyes without the patient being aware of it. We have never failed to detect an astigmatic defect in these cases, and more frequently it has been of the hyperopic variety. If the condition is limited to one eye, there may be no eyestrain. The explanation is that the more distinct image in the better eye gains the attention more easily than the less distinct image, which is disregarded. In other words, nature relinquishes the attempt to fuse the two dissimilar retinal impressions. This is one way by which the tragedies of eyestrain are avoided. It is the difficulty of securing good binocular vision that causes much of the suffering alluded to. However, it is a matter of serious importance that, in being spared this suffering which so many undergo, an eye in certain cases is not employed in visual work, for in this latter instance there comes a gradual loss of function from disuse, the "amblyopia ex anopsia," as the texts call it.

The anomalies of the muscles that move the eyeballs are often ignorantly mistaken for the primary causes of eyestrain when in truth they may be secondary to the refractive errors. As already indicated, hyperopic defects require greater muscular, and hence nervous, effort than the normal and myopic eye, especially in near work; consequently convergent and divergent squint are very common. Less frequently the muscles that elevate and depress the eyes are involved, but in such cases the symptoms are likely to be more severe. These muscular troubles are by no means confined to the farsighted persons, but are often seen in myopes also. In young peo-

[1] Chapter XII, in the *Graefe-Saemisch Handbuch der Gesamten Augenheilkunde*, 1910, p. 568.

ple especially these muscular anomalies are almost solely due to refractive errors, of which astigmatism is the most important factor. Crossing of the eyes may be regarded in most cases as an expression of over use of the muscles concerned in adjusting the eyes to near work; the turning out of an eye means, generally, that it is becoming functionless because of some defect in refraction. It is obvious how important it is to distinguish between cause and effect in these cases. It often happens that with people who have had no eyestrain because of monocular vision, with or without associated squint, trouble first begins when some unskilled person tries to fit the nonused eye with a glass to improve the sight, or attempts to straighten a deviated eye by means of a prism or by surgical operation. The restoration of function to an organ long inactive requires careful scientific methods, and of the eye this is eminently true. Often the most accurate measurements of the defects do not give results at once satisfactory to the patient. There are many reasons for this that cannot be entered into here.[1] Without in the least apologizing for the poor work done so often in refracting the eyes, a point to be taken up later, it can be said that many times failure to quickly secure relief for the eyestrain sufferer is not the fault of the oculist at all. It seems that in certain individuals the nervous system is temporarily much disturbed by the more or less sudden resumption of function in a retina that has been inactive for a time. Indeed, it seems that the mere process of interpreting accurately formed retinal images after a long period of adjustment to distorted ones is sufficient to make some patients very uncomfortable. At any rate, many a case has to be nursed along for weeks, with different lenses and with limitations of the use of the eyes, until the nerve centers and eyes reach a more stable condition. In strong contrast to this type of patient is the one who has slowly developed a marked refractive error in one or both eyes, so that distant vision is poor and near work can be done only with much strain to the ocular mechanism, yet no symptoms whatever are apparent. It is to be remembered, however, that when one eye is thrown out of function in the manner described it will eventually become useless unless restored to activity by a correct lens; and the longer the period of inactivity is extended the more difficult will be the task of recovering the eye's function.[1] Students who are getting along with monocular vision usually appreciate the importance of this matter when it is properly placed before them.

I have several times referred to "symptoms" of eyestrain. What are they and how are they caused, it may be asked. In order that the difficulty in satisfactorily answering this question may be appreciated, some preliminary remarks upon the relation of the eye and nervous system will be helpful.

The perplexing problem of the way in which visual stimuli become shunted off to different parts of the body through the mediation of the nervous system has been studied extensively and we gain useful information from various fields. The embryological development of the sensitive elements of the retina from the forebrain has been worked out, and the paths of the optic nerves and certain of their connections with

[1] Read: "Sixty-eight Reasons Why Glasses Did Not Give Relief"; Gould, *Am. Med.*, July 4, 1903; *Biog. Clinics*, Vol. II.

[1] Hess, *loc. cit.*, p. 569.

great brain centers demonstrated; psychologists and physiologists have revealed much of the interaction of the cerebral visual centers of the two eyes; the functional relation of the eyes to the process of equilibration by virtue of paths leading to the cerebellum, the great organ of coordination, has been established. Of especial interest in connection with eyestrain are (1) the demonstration[1] of the reinforcement of visual sensations by the activity of the intrinsic ocular muscles, the influence of which reinforces the cerebroretinal tracts, and (2) the coordination of the extrinsic muscles in binocular vision and their intimate functional relation to accommodation. In addition, I may allude to the enormous number of nerve impulses that must flow into the brain from the eye in a given unit of time. Sherrington, the physiologist, has emphasized this point in his book[2] on the nervous system. In this connection he mentions an interesting fact; discussing the organization of neural function as influenced by the "receptive range" of certain sense organs, he states (p. 334) that the optic nerve in man contains more conductive channels than are present in all the ingoing spinal roots of one side of the body put together; by actual count, 1,000,000 as against 634,000. It is worthy of note, too, that four of the twelve pairs of cranial nerves are devoted exclusively to the function of vision, the eye being also in part supplied by the sympathetic system. From such considerations as these we can more easily understand what an important role vision plays in normal nervous processes; and the same observations make less difficult the comprehension of the results of abnormal ocular functioning. We can predicate that when the defects described earlier in this paper exist some such chain of events as the following may arise: refractive errors interfere with the focussing of light; primarily, there is an effort of the accommodation mechanism and iris to compensate for the imperfect focussing; this involves an abnormal amount of muscular action, which possibly reacts upon the cerebroretinal tracts; hyperexcitability of certain nerve centers in control of these ocular functions is doubtless at first developed, with subsequent depletion of their energy; their condition in turn interferes to a degree with that of the centers governing other organs; at certain stages vascular, and hence nutritional, disturbances arise in the eye, with temporary and possibly permanent effects upon the retina and focussing structures; thus, a vicious circle is established.

Symptoms of eyestrain manifest themselves in many ways, and in one case they may in no wise resemble those of another, although the defects in the two instances may be very similar. These variations are to be traced to deepseated differences in the nervous organizations of people. The complex connections of the nerve centers involved in the elaboration of stimuli from the retina are only poorly understood, but it is certain that abnormal activities may be started in these centers, in many persons, as a result of impulse coming from eyes damaged by refractive errors. The condition may develop into a real mental trouble, of one type or another, or some distant organ may be the one affected. In either case there may be no local sign about the eyes that would suggest to the sufferer that the cause is an ocular abnormality. Frequently, however, the eyes give the first indication by redness, smarting or burning, itching of the lids, and blurring of sight;

[1] McDougal, W., *Mind*, 1903, vol. 28, N. S. 12, p. 473.

[2] "Integrative Action of the Nervous System," 1906, Chaps. IX and X.

there may be sensitiveness of the eyes to light, profuse secretion of tears, pain or aching about the eyes, or a sense of drowsiness when attempting to do near work. These are easily appreciated by the sufferer and their cause suspected, but the other class of symptoms reflexly developed in the digestive system particularly, and in the nervous system, are of the greatest importance, as failure to recognize them may result in serious consequences. They are mistaken for real diseases in the organs mentioned and all sorts of remedies are resorted to, when the only thing needed is a pair of scientific spectacles properly worn. It would be interesting to know how many so-called dyspeptics and neurasthenics there are who need simply a pair of glasses instead of elaborate and expensive sanitorium treatment. However, we do not find many such cases among students. The common symptoms among our young men are those already mentioned as local signs about the eyes, drowsiness on attempting to study, and occasionally headaches. Sometimes a case of insomnia is met with and nervous breakdown is now and then seen, as the direct result of eyestrain. Of all of these symptoms insomnia is the most distressing, and I know of no greater mental torment than that suffered by the person who can not sleep. That insomnia often has a tragic termination is fairly well known, but that eyestrain is a frequent cause of the insomnia is much less generally recognized. If this truth were appreciated there would be less mystery about many strange and illogical cases of suicide.

Digestive disturbances ranging from mild or severe dyspepsia to symptoms simulating those of appendicitis[1] may be observed, but among students these symptoms are often to be traced to poor food and bad habits. Nevertheless, indigestion, biliousness and constipation are not infrequently found to result from eyestrain. It is to be pointed out that all of these symptoms may be temporarily relieved by exercise, so that this accounts for the fact that our male students may have really serious ocular defects and yet get on without glasses. With the student exercise is usually one of his main interests, for the spirit of play is in him, but in other walks of life we find busy people driven by mysterious ill health to outdoor activities, which take many precious hours needed for writing. We owe an interesting observation to Dr. G. M. Gould who, in an extensive study[1] of the lives of celebrated people, musicians and various classes of eye workers, has adduced ample evidence that often an inordinate amount of exercise is indulged in, usually at night, for the relief of distress, mainly in the head or stomach. (Witness the cases of Huxley, Swift, Parkman and Wagner, and De Quincey in his lonely walks, day and night, rain or shine, round and round a circle for ten or fifteen or more miles a day; and again, Carlyle, who said that he had ridden one horse 20,000 miles). It is suggestive, to say the least, that in every case the relief obtained vanished almost as soon as eye work was resumed. When taken along with other signs, excessive exercise is certainly excellent evidence of eyestrain in certain types of patients. To digress a little further, it is a matter of great interest that, as Gould[2] has pointed out, many of the great literary geniuses of the nineteenth century were probably sufferers from malfunctioning eyes. Whether we quite agree with him

[1] Morris, Dr. Robert T., *Medical Record*, 1903, 64, p. 1011.

[1] Gould, G. M., *Biographic Clinics*, 1903-1909.
[2] Gould, *Ibid.* 111, p. 72.

or not in his inference as to their pessimistic views, there can be no doubt that the outlook on life that such sufferers have is most gloomy.

Among women, headaches, especially "sick headaches," are the common complaint. To be sure headaches have various and many causes, but undoubtedly astigmatism is the most common. Dr. de Schweinitz in his work[1] on the eye states that at least 60 per cent of functional headaches have this origin. Gould places the figure higher. Astigmatism is very likely to aggravate a tendency to headaches or to produce reflex pain in various organs. Thus women sometimes complain of pain which seems to be caused by pelvic trouble, such as uterine flexions and malpositions, ovarian neuralgias, and dysmenorrhea, when in reality ocular strain may be the source of the distress[2]. Girls become anemic and poorly nourished from reflex disturbances of this sort, and thus functional disorders pave the way for more serious and real disease of various organs. Many young women develop the condition vaguely indicated by the term "neurasthenia," a word much misunderstood by both physicians and laymen. Every experienced oculist has seen cases in which these different symptoms, apparently peculiar to women, quickly disappeared under treatment with glasses.

Another significant symptom frequently met with among young people is slow adjustment of the eyes when the focus is changed, especially from near to far objects. Nature has developed a marvelous mechanism for this act of accommodation. In eyes that are normal this process occurs almost instantly in young people, but in tired, over worked eyes a considerable time, easily appreciated, will elapse before the adjustment is completed. This usually means that the eyes are working under the strain of a hyperopic defect, of which astigmatism is the most important factor. This should be corrected by accurate glasses as early as possible, and certainly as soon as symptoms are recognized.

There are many other evidences of ocular strain, but I shall mention only some of the more frequent of them, all of which have been found amongst our own records; they are: styes, spasm of the eyelids, dizziness, fading vision, squinting, blind spells, choroiditis, retinitis, confusion of mind, melancholia, pain in the back of the neck or shoulders, and lateral curvature of the spine (shown by Dr. Gould to be produced by head tilting as the result of the usual writing posture and of astigmatism).. Undoubtedly many people tilt the head unconsciously because it sharpens the vision somewhat by rendering lines in certain planes more distinct. Thus, astigmatism may produce in the course of time a deformity of the spine and this deformity in the shape of lateral curvature may in turn be a source of muscular strain. We find a large per cent of the students to have lateral spinal curvature. In some it is certainly a condition of importance.

Much more could be said upon the subject of symptoms. It is true that many of those mentioned are not always due to eye-strain; nevertheless, when observed, they arouse the suspicion of defective eyes. The question that next presents itself is how these symptoms may be relieved.

This is indeed a problem, because it is so difficult to find skilled refractionists. There are many "specialists" so called, but there are comparatively few men who have the requisite medical and scientific training and the necessary skill, I might say art,

[1] "Diseases of the Eye," 1910.
[2] Morris, Dr. Robert T., *Am. Journ. Obstet.*, May, 1906.

combined to make a good eye specialist. Such men need to be physicians in the true sense, men with learning, judgment, and sympathy. But what are the conditions in this country with respect to refraction work? They are deplorable, and mainly for two reasons: first, the neglect of the medical profession to establish schools where refraction is properly taught and where the importance of refractive errors is emphasized and demonstrated; secondly, lax laws permitting all sorts of people to do refraction work and sell spectacles. Unfortunate and vicious legislative enactments bearing upon this subject have been made in this country with the result that we have conditions that are astonishing when we remember the pride we take in our twentieth century educational methods. This is the situation: Our laws have made it possible for people to do refraction work without having any knowledge of the eye and its diseases, and particularly without the slightest idea of the close relation of ocular conditions to pathological states of other organs, and thus it comes about that many persons ignorant of the complexity of the eye, and of the skill and knowledge required to treat its diseases, so often due to refractive errors, place themselves in the hands of "eyesight specialists" and persons who make a great point about testing the eyes without the use of drugs or "poison drops." The result is that miserable refraction work is done and serious lesions of the eye are overlooked. Not infrequently ocular disturbances are due to disease processes that primarily have a very different source, as in diabetes and Bright's disease. Thus, from ignorance of this point, the diagnosis of dangerous maladies is delayed. It is an astonishing fact[1] that twenty-six states in this country encourage work to be done in this way by licensing people to practice "optometry" without a medical education and with no more experience than a few weeks' or months' training in elementary optics; and what is more to our shame, we are not yet rid of quacks who don't refract but who prey upon ignorant people by offering to cure for stated sums all sorts of serious ocular diseases by "magic eye treatment" of one kind or another.

Aside from the miserable practices of the out and out quacks, who prey upon the ignorant public, there is a fearful amount of botch work done, both in the examination of eyes and the adjustment of glasses, so that there is almost as much *glass strain* as eyestrain. The main reasons for this unsatisfactory state of affairs are these: we find refraction being done without cycloplegia, or "drops," in cases in which such a procedure is absolutely essential for determining all the facts required; patients are not required to return for confirmatory examinations and inspection of their glasses; they are not told the importance of keeping their glasses properly adjusted and cleaned; their eyelashes are allowed to rub against the lenses, and foolish notions about spectacles are permitted to interfere with the oculist's work. The most astonishing thing is the employment by oculists of incorrect test lenses, of which there must be an amazing number in the land, because it has been found that even the best optical firms have put out test cases, pronounced perfect, which in some instances have proved to contain many wrongly marked lenses, particularly among the cylinders. One such "perfect" set contained nearly 17 per cent of incorrect cylinders. In addition, the opticians who grind the lenses for the

[1] Jackson, Edward, "The Optometry Question and the Larger Issue Behind It." *Journ. Am. Med. Assoc.*, 1911, LVII, 265.

patient frequently do miserable work (one physician[1] estimates that about 50 per cent of oculists' prescriptions are not accurately filled). They interchange the lenses, or reverse them, center them improperly, locate the axes wrongly and adjust the frames badly. It is no wonder that people often fail to obtain relief, become discouraged, and eventually resort to almost anything in their despair. It is evident that in this branch of medicine there is a serious state of affairs, which has existed entirely too long, and which calls for intelligent legislative regulation of the practice of ophthalmology.

In the preceding paragraphs I have spoken frequently of eyestrain. From what has been said, it may be seen that, as a rule, this strain is produced by abnormal conditions of the eye and not by abuse of normal eyes, though it is quite possible to maltreat good eyes by excessive close work. The fact is, however, that perfect eyes, optically speaking, do not exist. The defects in some eyes are so slight that they are negligible, but in over 90 per cent of our college students visual work is done under the handicap of refractive errors, which can be easily demonstrated. On the average, 35 per cent of these students suffer to some degree from these ocular defects, and in some of our colleges 50 to 60 per cent of the students need glasses. In one of our government institutions nearly every person enrolled wears glasses by the time he graduates. These facts show the important relation ocular defects bear to education. This matter has occupied for some years the attention of those in control of the public schools and much has been done to improve conditions in this respect. Of recent work that of Dr. William Martin Richards in the New York public schools is the most striking in its results. Dr. Richards selected thirty-eight pupils from the lower grades in schools 4 and 44, Bronx, N. Y., and made careful tests of the eyes, prescribed proper glasses, and saw that they were worn. Thirty-two pupils were hyperopic, two were myopic, and three had mixed defects of both eyes. He found that small errors, of the amount usually neglected, were one of the causes of failure to progress in the school work. From the reports of the teachers supervising the work of these pupils under observation one gathers the most astonishing facts. They cannot be given in detail. It is sufficient to state that the most marked psychic and mental improvement occurred in many of the cases, and in some it amounted to a complete change in the character of the child, formerly dull or unmanageable.

This is an indication of what can be done. The campaign of education in this direction has not been extended sufficiently, and in our institutions of higher learning much needs to be accomplished, if we are to make a consistent attempt to guard the health of the students[1]. The intimate connection which exists between the eyes and other organs cannot be unduly emphasized. It is certain that many good students have failed, either in college, or later, because of the excessive drain upon the nervous energy which followed from the use of eyes deformed by the common defects described. What a lamentable thing is a life wrecked by eyestrain when a pair of scientific spectacles would have prevented

[1] Hartshorne, Isaac, "Accurate Optics," *Boston Medical and Surgical Journal*, 1911, CLXIV, 12, p. 786.

[1] From inquiries sent out to 150 colleges and universities, I have found that there are several, including some of great prominence, in which no eye examinations are made. In most places the tests are very superficial and of little value.

the disaster. To those who have not the opportunity to witness the unfortunate and distressing cases that present themselves to the physician for relief from ocular disease, and to those who have never thus personally suffered, it seems that to speak of eyestrain "wrecking" lives is but using the words of the sensation monger and hobby-rider. Let no one be deceived by the belief that we are dealing here merely with a subject that only the specialist considers all important; rather, let us accept the facts as they actually are. That the visual apparatus is not meeting successfully the demands made upon it by civilization is an old truth. It should be appreciated that, with the exception of a few out of door pursuits, as agriculture, for example, nearly every kind of activity in which our educational courses prepare students to enter requires hours of continuous, close application daily. Even the agriculturist must do more and more reading as time goes on, and he must take a college course and use his eyes for close work to a much greater degree than heretofore. There is scarcely any vocation that does not tax the eyes to the limit[1]; they have enough to do under the best of circumstances. The added burden entailed by refractive errors means that in any case it is only a matter of time till something gives way. Those who are afflicted with ills induced by refractive errors should have the opportunity of having these defects neutralized by scientific spectacles. There is a great field in this division of medicine for the relief of suffering humanity, and for carefully trained physicians there is the opportunity, in thousands of localities, for doing an inestimable service.

[1] Read the address, "Eyestrain and Occupational Disease," delivered by Dr. Gould, at the Fifteenth International Congress on Hygiene and Demography, Washington, D. C., Sept. 23-28, 1912. Reprinted in the report of the meeting, and in the *Medical Review of Reviews*, Nov., 1912.

CONSTITUTIONAL INFECTION DUE TO SEPTIC PYORRHEA ALVEOLARIS WITH JOINT INVOLVEMENT.

BY

HARRY A. GOLDBERG, D. D. S.,
Visiting Dental Surgeon to the Hospital for Deformities and Joint Diseases, New York City.

Definition.—Septic pyorrhea is a disease which primarily affects the pericementum, manifesting itself in a suppurative inflammation, sometimes acute in form, but generally developing into a chronic type of inflammation, which involves the walls of the alveolus and the gums, the infection producing more or less severe constitutional symptoms. Locally, we have a discharge of pus from the alveolus, with disintegration and absorption of the alveolar processes, a recession of the gums and loosening of the teeth, while from the systemic absorption, we have evidence in the heart, lungs, tonsils, muscles and joints.

Etiology.—The disease is due to the infection of the tissues about the teeth, by microorganisms, (streptococci, staphylococci and other pyogenic bacteria), when the teeth are not properly cleaned, the infection taking place around roots, bridge work, fillings and ligatures, or sometimes foreign substance entering the tissues through injury.

The local symptoms are those of chronic inflammation, accompanied by fetid breath.

The constitutional symptoms resulting from septic absorption are often incorrectly diagnosed as anemia, malnutrition, uric acid diathesis, etc.

There is, it is claimed, a considerable number of cases due primarily to certain acquired systemic conditions like syphilis, mercurialism, typhoid fever, diabetes and tuberculosis; while a certain number are due entirely to certain local irritative conditions induced by the formation of salivary concretions deposited at the gingival border of the teeth, and upon the sides of the roots, their encroachment upon the pericementum inducing suppurative inflammation. The tissues lose their vitality and are unable to resist the action of the pyogenic microorganisms, myriads of which are constantly present in the mouth. In the later stages ulcerations of the membrane are present, a disintegration of the alveolar border, a recession of the gums and a swelling of the joints follow.

Local Symptoms.—Formation of calculus, gingivitis, bleeding gums. Pus pockets are perceptible at the margin of the gums and the crevices of the teeth frequently fill with food debris, and mucous secretions or a cheesy mass of calcic material. Bacteria in the mouth afford the means of septic infection, for the pus which continually discharges into the oral cavity passes frequently to the tonsils and sometimes produces a tonsilitis, enters the alimentary canal and becomes absorbed by the system. If the vitality of the joints offers less resistance than do the other parts, an arthritis will develop. We sometimes find an edema of the tissues at the apical foramen which results in death of the pulp and an apical pericementitis follows.

Prognosis.—The prognosis is favorable providing the existing causes are recognized and removed, and the constitutional effects successfully overcome.

Treatment.—When the physician has made his diagnosis of the gums as a source of infection, and has referred the patient to a dental specialist, the first step is the removal of all sources of irritation and infection. The anterior teeth present the most favorable conditions for the successful removal of tartar formations, the posterior being more difficult to treat, due to their location and the bifurcation of their roots, for at times this calculus becomes lodged between the bifurcations and it makes it very difficult to remove same. After the roots are thoroughly cleaned and polished, hydrogen peroxide is injected into the pockets, followed by a saline solution; the next step is the application of one of the following, tincture of iodine, aromatic sulphuric acid, or trichloracetic acid. Frequently, it becomes necessary to remove the pulps of the teeth affected, with the result of their tightening. In cases where pain is present or where there is a marked bleeding, tincture of echinecea is injected into the pus pockets.

Use of the High Frequency Current.—High frequency current is an alternating oscillating current in which the frequency is beyond the point of producing muscular contractions (Eberhart). It is one of the most valuable aids in the treatment of pyorrhea alveolaris arthritis. It stimulates the tissues, thereby increasing absorption. (There are a number of vacuum tubes made especially for oral use).

Surgical Rest.—Teeth which have become loosened due to resorption of the alveoli must be given surgical rest, if the healing process is to be successfully completed. This may be accomplished by supporting the teeth by either silk or linen ligatures, Chinese grass line, or appliances made of gold, platinum or German silver and cemented to the teeth. There are cases where pulps of teeth must be removed and

appliances made to fit into the roots and cemented into place.

The teeth, as a source of constitutional infection, have been drawn to the attention of the medical profession in the past year by valuable papers of Drs. Francis P. Kinnicutt, New York City; Frank Billings, Chicago, Illinois; Stewart Wright, Toronto, Canada; Morris Manges, New York City, and others.

The following cases observed at the Hospital for Deformities and Joint Diseases, or referred to me by the chief of staff and his associates at the hospital, have been treated by me with the most gratifying results. I will merely cite a few cases to call attention to the gum infection as a source of joint trouble.

CASE REPORTS.

Case 1.—Mrs. S. Case referred to the service of Dr. Henry W. Frauenthal by Mr. Lewis Straus, a director of the Hospital. Patient has been treated in several institutions previous to admission to the Hospital, for rheumatism without any benefit whatever. Her pain was so acute that she attempted to commit suicide twice, having been informed that her condition was chronic, and would never improve, but on the contrary, would gradually grow worse. Owing to the condition of her gums, Dr. Henry W. Frauenthal made a diagnosis of joint condition due to septic pyorrhea alveolaris and with no other treatment but the correction of the mouth infection, as done by myself, an arthritis involving both knees, left ankle, right wrist and elbow, cleared up in ten days, and at the end of three weeks, patient was discharged cured. Her temperature varied from 98 degrees to 102 degrees F., with a corresponding pulse. This condition extending over a period of nine months, responded to treatment in ten days.

Case 2.—Mrs. M., age 36 years, was admitted to the Hospital for Deformities and Joint Diseases in June, 1913. Dr. Henry W. Frauenthal, physician and surgeon-in-chief of the Hospital, made the diagnosis of a pyorrhea alveolaris arthritis. The patient was confined to bed because she could not walk; all her joints were swollen. The gums and teeth were treated and after the first week, the patient was very much improved, the inflammation left the joints and patient wanted to return home, but Dr. Frauenthal thought it best to keep her under observation for two weeks more, which he did to see if there would be any recurrence of the disease and at the expiration of the second week patient was discharged cured.

Dr. Henry W. Frauenthal has had a number of similar cases and all have responded to dental treatment.

Case 3.—Mr. F. H., aged 9 years. Patient referred to me by Dr. Henry W. Frauenthal. Boy experienced severe pains in his joints and calf of his legs while walking. An examination of his oral cavity disclosed abscessed teeth and broken down tooth structures. Teeth were treated by me while Dr. Frauenthal took care of his system; at the end of the second week, boy felt fine and could walk and run without any discomfort.

Case 4.—Mrs. S. R., aged 23 years, married. Was referred to me by Dr. Henry W. Frauenthal at the Hospital for Deformities and Joint Diseases. Diagnosis suggested by Dr. Frauenthal was infectious arthritis due to pyorrhea involving the left shoulder and elbow joint. Patient could not move forearm without experiencing severe pain. An examination of the oral cavity revealed a pyorrhea and five ill-fitting gold crowns. Removed the crowns and found teeth abscessed. Treated the teeth, gave patient high frequency current, and after two weeks' treatment, all pain disappeared. The teeth responded to treatment.

Case 5.—Mrs. S., 34 years old, was referred to me by Dr. Herman C. Frauenthal of the Hospital for Deformities and Joint Diseases. The diagnosis suggested by Dr. Frauenthal was infectious arthritis due to pyorrhea. This case was referred to Dr. Frauenthal by a physician,[1] who advised the extraction of all of the teeth. Patient came under my observation on November 21,

[1] Case 5 was referred to Dr. Herman C. Frauenthal by Dr. George W. Jarman.

1912, and presented a severe pyorrhea alveolaris arthritis; her knee, hip and finger joints were swollen, she using crutches to support herself. An examination of the oral cavity showed a severe pyorrhea with three ill-fitting bridges. Dr. Frauenthal and myself treated the patient and by the end of the third week, patient could walk. No teeth were extracted, the pyorrhea was arrested, the teeth tightened firmly, permitting new bridge work and patient was discharged in May, 1913. The treatment was the same as previously described.

Case 6.—Mrs. B., aged 35 years, came to my office April 25th, 1910, presenting a very severe pyorrhea alveolaris arthritis with her fingers and knee joints swollen. She had been discharging pus for 15 years from her gums. Her teeth were very loose, breath fetid. She had been to a number of physicians who regulated her diet, saying she had rheumatism; one doctor examined her oral cavity and advised her to see a dentist. The dentists whom she visited suggested having all her teeth removed. She had four extracted that were very loose and as she described them, perfectly good teeth, she could not understand why such teeth could not be saved for none of them had cavities. We very seldom find cavities in teeth affected with pyorrhea.

The teeth were thoroughly cleaned, injection of peroxide of hydrogen into the pus pockets, followed with a saline solution, tincture of iodine being applied to the gums, and the high-frequency current given. On June 7th, 1910, the patient was discharged. The systemic symptoms cleared up while treating her teeth. Saw patient in November of the same year and she felt very well. In June, 1911 and 1912, she had her teeth cleaned and her gums were in very good condition. Her joint affection has never returned.

Case 7.—Dr. Francis P. Kinnicut, M. D., wrote a paper on "Oral Sepsis" which appeared in the *Medical Record* of September 13th, 1913. He relates two cases that were observed and studied by him ten years ago. In one, fever of a remittent type with a daily temperature range from 99 degrees to 102.5-103 degrees F. had been present for two weeks. The illness had caused much anxiety because of its undetermined nature. Several diagnoses had been suggested. Careful investigation of the previous oral history brought out the fact that several months previously a single tooth had given much trouble to the patient. Its root canals had been treated in England, efficiently, it was believed. At the date when his advice was sought, the tooth was causing no subjective symptoms and an examination revealed only a limited but severe gingivitis. In the absence of the physical signs of organic trouble in connection with various negative laboratory tests, he suggested that the symptoms might be due to a concealed oral sepsis and advised a thorough investigation by a dental surgeon. On first inspection, the dentist expressed a very positive opinion that the oral conditions could not be the cause of constitutional symptoms, but on removing the filling of the tooth, a foul and smelling alveolar abscess was discovered; with the extraction of the tooth, the temperature fell to and remained normal after forty-eight hours, and all other symptoms disappeared.

Case 8.—The second case had suffered from undefined ill health for two or three months, systemic temperature observations showed the presence of slight daily fever, normal temperature in the morning 99.5 to 100.5 degrees, F., in the late afternoon; an unrecognizable tuberculous infection was feared. Here, too, there was a suspicious oral history and there were local signs in the form of a moderate gingivitis and a pyorrhea alveolaris. A thorough investigation and treatment of the oral conditions were rapidly followed by the complete disappearance of the constitutional symptoms and by a return to the usual health.

These cases prove that before a diagnosis is suggested in cases where there is a question, a thorough examination of the oral cavity is advisable. In case 7, the writer is of the opinion that had the tooth that presented itself with an abscess been treated properly, instead of extracted, the patient would have recovered without the loss of the tooth. Physicians under such conditions do not value a tooth when it

impairs the health of a patient. The writer has treated over three thousand abscessed teeth without the loss of one, hence takes the stand that he does.

Dr. Morris Manges, M. D., New York, in a paper on "The Mouth from a Diagnostic Standpoint," says: "Physicians have been singularly deaf to the plea of the dentists to pay more attention to the subject of pyorrhea alveolaris and we should heed their statements much more than has been the habit of most physicians. A skilled dentist can tell us much about the general condition of the patient from an examination of the gums, and a good differential diagnosis can be made by them of the incipient stages of diseases like nephritis, diabetes, tuberculosis, gout, etc. Each constitutional disturbance has certain peculiarities in the pyorrheal picture which enable the skilled stomatologist to differentiate them as to their etiology. Therefore, the routine examination of the gums should be included in one's inspection of the mouth, and the presence of pyorrhea should warn the physician to look for the cause of it. Should he be unable to discover it, the case should be referred to a dentist who is skilled in stomatology, both for treatment and differential diagnosis.

Conclusion.—In conclusion, I would call the attention of physicians and dentists to the frequency of constitutional infection from septic pyorrhea alveolaris, resulting in joint involvement, which, no doubt, is often wrongly diagnosed as rheumatism and treated as such, without result, while if the cause is recognized and the source of infection in the teeth treated, a speedy and successful result is obtained.

THE SIGNIFICANCE OF MYCROCYTES IN THE BLOOD.

BY

ROBERT L. WATKINS, M. D.,
138 W. 71st Street, New York City.

Mycrocytes—dwarf cells, or what I often call "brokers' cells," so common among Wall Street men in my experience, are a neurotic cell.

The term "mycrocyte" of course means a small red cell, and a number of them would be called "mycrocytosis." A red cell or "erythrocyte" is well known to be $^1/_{3500}$th to $^1/_{3000}$th of an inch in diameter, or $7^5/_{10}$th microns, and a microcyte anything below this.

The determination of mycrocytosis in an individual is much better observed by fresh blood examination, and in doing this not only one field, but several fields, should be examined.

Another point of importance is the fact that if one wants to get the maximum number of mycrocytes in a drop of blood, after the puncture is made, if the blood is squeezed out of the wound it seems to bring out of the capillaries mycrocytes that otherwise would remain in the tissues.

I think the first case in which I noticed this mycrocytosis to any marked degree was that of a New York broker, many years ago. He admitted that he was very nervous, in fact that was what he came to me about. I attributed it to excessive use of cigarettes, his strenuous life, and over excesses of a moral nature.

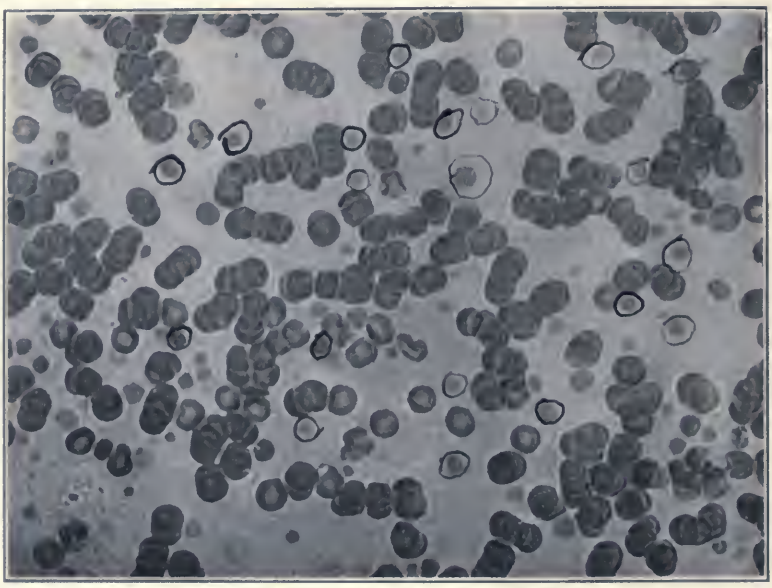
CASE II—Only the other day a clergyman was here for blood examination, and he not only suffered from rheumatism but, on finding the mycrocytosis, I remarked that I should judge from the blood that he was in a precarious nervous condition. He said that was true, that he had retired from

the ministry because of that very fact. In this man's case there must have been, giving a rough estimate, about 50,000 or 60,000 mycrocytes to the c. m. m., that is, there were on an average in the ordinary field of the microscope, using a 1/6th objective, 15 or 20 mycrocytes to the field.

He said he had been overworked for about five years, and he laid his present condition to that fact, and to the fact that he suffered from repeated attacks of grip.

pernicious anemia, in fact very frequently they are associated with the poikolocytes and degenerative red cells. They are also more or less present in chronic alcoholics.

It has been my observation that mycrocytes never form in rouleaux, and this I explain on the basis that they are more or less weak, and, being flat, have no biconcavity so as to allow them to form a partial vacuum between each other. In extremely nervous cases occasionally these cells will be found



MICROCYTES IN THE BLOOD

One fact I would like to call attention to, so that others may either confirm my observations or otherwise, and that is, that when one is suffering from some central lesion of the nervous system, for instance, thrombosis or paralysis, due to central brain lesion, these cells are not so greatly in excess—they are so mainly when the peripheral nervous system is affected. I have noted these mycrocytes in excess in old cases of diabetes, and occasionally in so small as to look like pinheads under the microscope.

The theory in regard to mycrocytosis, in my opinion, is that the nervous system is so overtaxed, and so used up that the blood cells are not given time to grow to their full size, and it is more especially, in my observation, due to some lesion of the sympathetic system that these dwarf cells are most prominently found.

CANCER OF THE RECTUM.

BY

CHARLES J. DRUECK, M. D.,
Chicago.

It is obviously impossible in this short paper to take up an exhaustive consideration of the subject and I shall limit myself to the consideration of the insidious development of this disease and the necessity for the medical man constantly bearing in mind the possibility of malignant disease when interpreting almost any group of rectal symptoms.

Cancer is the most fatal and one of the most painful diseases we have to meet in the rectum. Its exact cause here, as elsewhere in the body, is obscure, and the theories advanced are so much at variance that the writer is not prepared to advocate any opinion. Statisticians and pathologists vary considerably in their reports. Carcinoma of the large bowel is a common disease, but the small intestine is only rarely the primary seat. The large bowel of the intestinal canal contributes about 95 per cent. of all cases of cancer, and of these the rectum claims 80 per cent. and the colon 15 per cent. Cancer in general is much more common now than formerly, but whether this is due to our modern living or is only apparent because of better diagnosis and more careful collection of cases is to be determined. Heredity seems to be an element.

As regards the location of the disease, it is most frequently found about three to five inches within the rectum, the lower limit being on a level with the internal sphincter, next in frequency at the anus—Williams estimates three cases at the anus to forty within the rectum—and least frequently the growth is situated in the upper rectum or sigmoid. The region extending up from the internal sphincter is not only the most frequent site, but also the most fatal, for at this point the disease more rapidly runs its course and is more liable to accidents on account of increased anatomical dangers to obstruction.

Varieties.—At the anus, epithelioma is nearly always the rule, and is the same form as that so commonly seen on the lip. It begins as a hard, warty nodule at the mucocutaneous border and not within the anus and makes slow progress, for it does not ulcerate until late in its existence, nor does it spread up into the true skin. Microscopically, it contains the characteristic nests of squamous epithelium.

Within the rectum, the cancers belong to the columnar cell growths and resemble the histological structures of the mucous membrane from which they grow. They are adenocarcinomas and closely resemble the benign adenoma; but the glandular hyperplasia of the simple adenoma is restricted to the mucous membrane and grows up into the lumen of the bowel, while the carcinoma infiltrates the submucous tissues and spreads out in all directions. Microscopically the resemblance between the groups of cancer cells and the tubules of the normal gland are so great that the tumor may be mistaken for a benign adenoma, but in the margin of the growth quite atypical cells will be found.

These growths arise above the sphincter and are easily differentiated from the squamous variety. Early in its existence the growth may appear pedunculated, and clinically it is impossible to distinguish from simple adenoma until the tendency toward a broad infiltrating base shows the malignancy. Later ulceration occurs and inflammatory changes are superimposed; all being aggravated by the irritation of the feces.

The cancer varies somewhat in gross and microscopical appearance and also in clinical history, according to the histological structure which predominates in the make-up of the growth. Thus, although the same elements are used, we find encephaloid, scirrhus or melanotic cancer.

The encephaloid cancer arises primarily in the crypts of Lieberkuhn and is enclosed in a connective tissue capsule which sends trabeculae into the mass, dividing it into lobules. The cells are large, round and nucleated. It is often vasular with large veins coursing through it and on its surface. In the interior, extravasation of blood gives the tumor a soft, mushy feel and it resembles brain tissue, hence its name, encephaloid, while in other instances it is spongy and shreddy like placenta. Later a large amount of cancer juice containing cells exudes on pressure, and if dropped into water it quickly diffuses, giving the whole a milky appearance. Paget considers this a valuable rough test in diagnosis. If seen early the cancer is movable in the subjacent tissues, but when seen later it is soft and friable upon an indurated base. These cancers grow rapidly and may even fill the whole pelvis, involve surrounding tissues and secondary growths develop in neighboring organs. The glands are involved early and if the tumor is removed it soon recurs, although considerable temporary relief is obtained by its removal and the cachexia disappears for a time. Digital examination is deceptive because of the extreme softness of the tumor and the apparent fluctuation imparted, but a little fluid aspirated will clear all doubt by showing cancer cells and blood. As the deeper structures degenerate they become cystic with a mucoid, glue like, translucent yellow substance, which distends the tissues and the growth is called alveolar or colloid cancer.

Scirrhus or hard cancer is the variety most frequently met in the rectum. It arises in the submucous connective tissue as a hard nodule beneath the normal mucous membrane and radiates out in various directions, but principally longitudinally up and down the rectum. These new extensions can sometimes be felt as hard bands or processes, claws, from which cancer receives its name. This form of cancer is said to be more frequently on the anterior wall of the rectum near the prostate and infiltrates all surrounding tissues and eventually involves the bladder. The diagnosis of this form is made by its hardness and contractility, but its history is often necessary to differentiate it from simple fibrous stricture of the bowels. Kelsey reports a case of dysenteric diarrhea which resulted in a stricture and presented a typical clinical picture of scirrhus cancer, but had existed eighteen years. In the scirrhus variety the stroma is abundant and the alveoli narrow with the cancer cells frequently small. Fatty degeneration of the cells often occurs and the stroma remains to contract. Secondary metastatic growths occur late and there is hope of a cure by early and thorough excision.

Melanotic cancer is placed among the carcinomas by some pathologists and by others among the sarcomas. It is soft and medulated and has increased development of pigment. It is rapid and malignant in growth and often becomes generalized. Only ten cases have been reported, and only six had complete histories. Five were men and one a woman. The ages varied from forty-five to sixty-four. Microscopical examinations were made in five cases and these were all classed as sarcomas. The

symptomatology was the same as any rectal cancer with the exception of one case where the stools were black, and also after making an examination the finger was blackened.

Symptoms.—Cancer of the rectum begins insidiously and often reaches such development before the patient is aware of its significance that it is beyond hope of complete cure. He thinks he has hemorrhoids or some other simple rectal ailment and dismisses it from his mind because he objects to an examination. The mild character of the symptoms for some time is peculiar to cancer situated above the middle of the internal sphincter, because the bowel has so little sensitiveness that considerable growth and even ulceration may exist without causing much if any uneasiness. However, when the disease is below the sphincter there is great pain and the suffering itself may be of assistance in making an early diagnosis. In all cases, very early in the history of the disease, there is an uneasiness in the rectum which grows worse each time the bowels move as though they had not completely emptied. There is also a bearing down and if the disease is near the anus this straining is sometimes violent.

The pain of rectal cancer is variable. Early in the disease it is usually not severe but later it is often intense and is the most important symptom to be treated. If the anus is eroded, the pain is similar to that of irritable ulcer or fissure and begins as early as the growth pushes through the mucous membrane. Pain or cramp in the lower extremities is a bad sign, for it suggests encroachment on neighboring nerves either by stretching or pressure of the cancerous mass itself or of the infected glands. Later, pain also occurs from irritation of the feces upon the ulcerated surface, especially when the anus is ulcerated. Each condition must be carefully diagnosed as each requires special treatment.

Slight morning diarrhea or rather several movements consisting of mucus and feces is the first inconvenience noticed. Later a sanious discharge containing shreds of broken down growth escapes, at first only during defecation but later as the sphincters lose their usefulness, more or less continually and excoriates the anus and skin about the parts. This discharge has the odor of decayed flesh and once recognized is never forgotten. It is similar to the odor of cancer of the uterus.

The ulcerations of the cancer that produce the fetid discharge are of two kinds, that above the stricture and that of the growth itself. Ulceration developing above the growth differs from the cancerous necrosis in that it is superficial in depth, has a clean smooth base and low even edges. It results from pressure of and toxines absorbed from the retained and hardened feces that are lodged in the dilated portion of the rectum immediately above the obstruction. When the obstruction is relieved, these masses are found to be dry and almost stony in hardness and seem imbedded in the tissues and if removed leave ulcerated spaces beneath them.

The ulceration of degenerated cancerous tissue is different. Early in the disease the normal mucous membrane is movable over the growth but the cancer soon breaks down; this degeneration may occur at one or several places simultaneously and the mucous membrane is honeycombed with ulcerating spots through some of which the cancerous mass may protrude. Ulceration begins at the central or denser parts of the cancer and is not limited to the superimposed mucous membrane but invades the

deeper structures and in some cases extends into neighboring organs. The bladder is frequently opened and a urinary fistula produced, the urine escaping through the rectum, and sometimes the feces are forced into the bladder and through the urethra, causing excruciating pain. This is one of the most urgent indications for colotomy. The prostate or seminal vesicles in the male or the rectovaginal septum in the female may be destroyed. When the prostate or urethra are involved obstruction to urination begins, and if the disease extends to the bladder wall cystitis develops. Smith records a case where the disease opened into the hip joint. While the center is degenerating the periphery is advancing into new tissues. Around the edges the growth, together with the inflammatory reaction, raises the borders and gives the ulcer a crater-like appearance. The muscular tissue seems to have a greater resisting power and prevents somewhat the extension of the ulcerative process. The extension, however, progresses irregularly and creates a ragged edge.

Hemorrhage from cancer occurs frequently but is seldom profuse enough to be dangerous, although anemia produced by the repeated losses may be an element in hastening the end.

Obstruction is variable in its symptoms, sometimes advanced scirrhus cancer which has narrowed the lumen of the bowel until it will hardly admit the end of the finger will cause little or no obstruction. Not infrequently the passage of feces is never much interfered with, because ulceration begins early and the growth sloughs off enough to keep the passage open. When obstruction exists and is located in the lower rectum or at the anus, the feces are ribbon-like in shape or small pea-like balls or else the frequent efforts at defecation bring away small amounts of feces mixed with muco-pus and resembling a diarrhea. Blood is frequently mixed with the feces, suggesting a dysentery instead of the real disease. Ulceration into the surrounding tissues with the production of an abscess and fistula allows the extravasation of feces and often a large dissecting abscess. The obstruction when present is similar to that of simple stricture and not in any way pathognomonic of cancer. The patient's history does not differentiate the disease and all depends on a physical examination which requires great care and delicacy.

Cancer in this region is of rapid growth and if a patient asserts the stricture has existed for many years it is evidently not malignant, although it must be remembered that carcinoma may be engrafted upon any benign growth or ulceration.

Examination.—Digital examination is of great value in all rectal strictures and in cancer it is absolutely necessary because here a hard nodular mass will be found which involves perhaps only one side of the rectum, while the other side is covered with normal mucous membrane; or the mass may encircle the rectum, leaving only a small opening in the middle. Its peculiar character on palpation is a hard, rough, irregular mass projecting into the rectum, easily differentiating it from simple stricture, which is smooth, or a tubercular stricture which undermines surounding areas.

Ulceration will probably be found in all cancer cases or at best with few exceptions, because they are rarely seen before this stage. Irregular masses appear to have been broken off roughly. Raised edges surround the ulcer and give it the crater-like appearance. The finger being well

anointed and inserted feels this rough irregular edge all around the constriction and then suddenly passes into a wider channel above where frequently masses of hardened feces are found. Exceptionally a softer polypoid mass (encephaloid cancer) is found simulating a benign adenoma but having a broad base which infiltrates the submucous tissue. Every possible care must be taken in passing the finger through the obstruction where it surrounds the rectum, especially if near the peritoneal surfaces for fear of tearing through the friable wall and entering the abdomen. The necrosis may leave a very thin partition at some one point or the ulceration in the bowel above the obstruction may be very deep. The finger must never be pushed hurriedly through a carcinomatous stricture and even soft bougies must be used with great caution. Numerous cases of rupture and sudden death have resulted from carelessness in making an examination.

Cachexia appears earlier in cancer of the rectum than when the disease appears in other parts of the body, probably because of the ulceration and breaking down of tissue produces a constant absorption of toxines and septic matter, which brings on an emaciation even when there are few or no local symptoms. Metastatic growths in the liver, lungs, kidneys, and other organs, of course, accelerate the general break down. However, in some cases, the appearance of vigorous health is maintained until late in the disease; any case of gradually developing obstruction of the bowel with progressive loss of weight and strength in a middle-aged person is always suspicious, especially if inquiry brings out a history of constipation or spurious diarrhea. Lymphatic enlargement is a valuable sign and may generally be found if properly sought for.

There are, however, two sets of lymphatics involved in this region. One set arising from the anus and surrounding integument terminates in the glands in the groin, while those from the rectum proper end in the sacral and lumbar glands. Therefore in disease within the rectum the infected glands are to be palpated along the spinal column and deep in the pelvis because unless the external parts are involved the inguinal glands may be nearly or quite normal and a thorough examination of the deep systems will determine the advisability of operation or only palliative treatment. Another point in diagnosis is that these enlarged glands or the cancer mass itself may produce pressure symptoms in parts quite distant or independent of the rectum. Pressure on the iliac vein will cause edema of the legs, a condition that occurs frequently in the later stages of the disease.

This gives the reader a general picture of the clinical features of cancer as found in the lower part of the large bowel, and the object of this article is to set out prominently such symptoms as will assist in a clear and early comprehension of this dread disease. What course of treatment shall be adopted depends on many things, which of the symptoms are most prominent, the position and extent of the growth and the involvement of other and perhaps vitally necessary organs. Upon these the surgeon must decide whether his treatment shall be removal with a hope of lengthening life and perhaps curing the patient, or shall it be simply alleviation of suffering. If the entire mass and sufficient perirectal tissue can be removed, the prognosis is relatively good, but in advanced cases the prognosis is bad, regardless of the operation.

438 East Forty-Sixth Street.

THE ANNOTATOR.

Immortality Again; what Maeterlinck Thinks.—More than once we have referred to the views of Sir Oliver Lodge on immortality and a future life, and recorded with regret the fact that the eminent scientist had proved nothing, but had simply once more voiced the hopes of us all. Maeterlinck, the Belgian mystic, poet, dramatist and naturalist is the latest writer to take up the perennial subject in his book *Our Eternity*. No more attractive subject exists for an excursion into belles lettres and Maeterlinck writes beautifully as those of our readers who are familiar with his essay on bees are well aware. Alas! what is there but another futile speculation to record. Indeed for those who will read carefully the writer betrays the secret and acknowledges that not a shred of certainty is to be found as to existence, personal or universal, after death. The pen of the poet is of no more value than one of our own scalpels in wresting this secret from Nature. A belief in immortality lies at the basis of all religions and far be it from us to attempt to destroy so comforting a belief in any mind. Science, however, is mute upon this point: yet no one can say that one day she may not lift a veil. Since Sir Isaac Newton failed so ignominiously in his *à priori* arguments against aerial flight, who shall henceforth dare to fix limits to the revelations of science? To be sure, the reply of science might be in the negative; such an answer would open the door to anarchy and eventual subjection of the weak to the strong in a hopeless slavery.

Is the Proprietary Manufacturer Justly Treated?—Let us take two of the most unpalatable and difficult to manage standard drugs, such as iron and some salt of calcium. Jones, a retail druggist of long established and excellent local reputation, has been supplying the physicians of his town with an elixir in which the taste of these drugs is thoroughly disguised, yet its therapeutic effect is undoubted and all that could be desired. Visiting physicians and others become interested in the mixture and Jones begins to circularize his county and eventually his state. Finally, urged by medical friends, Jones resolves to place his elixir on the market. Desiring to do the right thing and not violate any ethical understanding, he applies to the official journal of the national association for admission to its advertising columns. He receives a reply in which it is stated that he must submit his working formula. To this Jones answers that each fluiddram of elexir represents so and so much of the perchloride of iron, say, and of a useful calcium salt. "As to color and flavor," he concludes, "that is my little secret, which I wish to guard in order to protect myself against substitution and fraud. Both are due to a synthetic substance discovered by myself in the course of many years' study and which, as I have conclusively proved by experiment, is absolutely inert, both physiologically and therapeutically. Its sole characteristics are its delightful and disguising taste and its rich color. My reputation stands back of these statements and I know that physicians are not interested in learning more of the preparation than its undoubted efficacy and steadfast adherence to formula." Admission to the official columns is refused; if the matter stopped here, Jones perhaps could hardly have ground for complaint. If, however, he is so ill advised as to advertise in every other medical journal in the country, whose editors recognize that the manufacturer has some rights which they are bound to respect, not only Jones and his elixir, but every journal that admits his announcement immediately becomes a target for the most virulent abuse of the official editorial columns. Jones is a fakir, his remedy is a secret humbug, every physician who prescribes it is a quack, and every physician who writes an original article for the journals in which Jones' advertisement appears, is *particeps criminis*. Further than this, the chemists of the official organ go to work to duplicate Jones' elixir; they fail and manage only to produce an ill tasting, hideous and useless mixture, which is incorporated into *New and Non-official Remedies* as "practically reproducing a well-known proprietary elixir." If any member of the association is so ill advised as to prescribe this official mess and wins thereby the enmity of disgusted and unimproved patients, he is more than likely

to blame Jones. For a short time the prescriptions of physicians which have called for Jones' Elixir are filled with the nasty official mixture, labeled on the large container, "Calcium and Iron Elixir; Jones' Formula," which it is not. Sales soon fall off and Jones retires from the field with his sense of justice outraged, and the market for his excellent and valuable discovery is thereafter restricted to the prescriptions of the few neighboring physicians who know him. Do our readers think that Jones has had a square deal? Yet we believe this little allegory to reproduce faithfully the recent history of several well known and admirable proprietary preparations. Credit is due to the authorities for killing off many a dishonest and possibly harmful fake, but they have confounded the innocent with the guilty and the practising physician's armamentarium is so much the poorer in consequence.

A Sample of Antimedical Accuracy—The editor of *Life,* in the issue for November 13, 1913, permits the publication of an illustration showing a muscle at the exact angle of the elbow (the olecranon) of a sort of anatomical manikin, plainly labelled Platysma myoides; to show that there is no mistake the legend reads "Bending the right arm from the Platysma myoides, grasp the hand of your hostess." This is a fair sample of the accuracy of the editor of this malignant antimedical publication in dealing with medical subjects generally, such as experimental physiology, vaccination, preventive inoculation, and other matters concerning which he poses as an authority, but which he treats with the sentimental bias and hematophobia characteristic of persons without scientific training.

Is the Older Man's Day at Hand?—One of the astonishing things to the unthinking at the recent world's series of baseball games was the remarkable success achieved by the older players, men supposed to be beyond their prime. As the *New York Times* pointed out in an editorial article, the same is true of players of golf and tennis; the maturer player, other things being equal, has the advantage. A great many thousands of people saw these ball games, among them many employers of labor, clerical and other. It is to be hoped that they drew a valuable inference from what they saw. Is it not about time that the young man had a rest somewhere in the rear ranks? Youth is a magnificent thing, but except in the rare case of genius, the place of youth is not to lead, but to follow and learn. Many a business has been wrecked during the past decade or two in the reign of the young man, his spectacular methods seeming to carry all before them for a time. But the lesson is beginning to be learned; where balanced judgment is needed, maturity of mind is most likely to furnish it. Generals no longer fight in the van; they sit comfortably out of gunshot, directing the campaign by wireless communications. One sees more gray heads at office desks these days. We cannot long ignore the teachings of physiology. Youth is the time for mating, for fighting, for growing, for singing and dancing too; middle age, with calmer passions and more charitable judgments, plots and plans and maps out the way for the young fellows to proceed to wipe out or build empires.

Carrel.—A. Latarjet contributes to *Journal des Practiciens* for August 2, 1913, an eloquent pen picture of Dr. Alexis Carrel, from which we make a few extracts. Latarjet heard Carrel lecture at the Lyons Medical School on the technique of vascular surgery, the transplanting of organs, the culture of organs outside the body, etc., and was greatly impressed with the modesty of the young surgeon whom he claims enthusiastically as a Frenchman. The writer proceeds: "His imagination suggests the fundamental hypothesis which must be verified without preconceptions; from this point the scientific artisan begins his work. He invents the tools, creates a technique, modifies, improves, wills it to be perfect because it must be so . . . . What boots it whether experience supports or destroys the hypothesis? Is not the most unexpected fact frequently the most fruitful when the observer detects the bonds which unite it to

other facts? Only the analogy of facts nourishes scientific truth. So Carrel goes straight ahead. Like the miner he follows the lode step by step, digs daily further into the gallery without ever losing sight of the precious metal to be extracted. He transforms neither the concrete into the abstract nor the abstract into the concrete; he is ignorant of the mental process which is deceived by words and remains uninterested in actual life . . . . He does not know how to lecture, but he made us traverse the great highway of scientific life along which, like beautiful trees, facts spring up after facts. His unexpected conceptions and the boldness with which he verifies them have astonished the Philistine, but experiment, which stabs into the darkness like the foil of a fencer, needs no plume of eloquence to conquer and to prove the beauty of science. Carrel is young, his creative enthusiasm arouses the enthusiasm of those who wish to work, less gloriously perhaps than he, but still usefully." Latarjet concludes by paying a tribute to America, where scientific benefactions have enabled physicians to keep steadily at work like Carrel's without being obliged to stop from time to time to do a little pot boiling.

Do Masculine and Feminine Views Differ as to What is Immoral?—Some of the recent plays produced in New York have raised an outcry on account of the representation in each of the parlor or drawing-room of a bagnio; and it has not been without interest to note that men have been much more shocked by these scenes than women. Are we therefore to conclude that women are broader minded than men in these matters, or, from another standpoint, more lax? We do not think such a conclusion is justifiable from this one datum. Many men—we are not speaking obviously of men of stern moral principle—see in the stage setting of this kind much more than appears to the eye; they instantly connote what goes on in such surroundings. The sale of champagne, the traffic in women themselves, an atmosphere of smoke, glare, obscenity, loud and vacant laughter, loudly played ragtime and many other things suggest themselves to a man whose youth has been wild, and he does not reflect that these mere suggestions are quite absent from the vision of a decent woman. She sees nothing but a room, furnished in greater or less good taste, a few women in evening dress, a few ordinary-looking men, a pianist, and perhaps a tray of glasses—all things in themselves innocent. The man proceeds to write to his favorite paper with his mind seething with memories conjured up more by a printed line on his programme than by what he has actually observed. The woman has alone caught the real significance of the scene; she has viewed the trap, the maw of vice which must be constantly fed with her unguarded sisters; it is unlikely that she can have any sentiment but one of horror.

Can we not have plays and books for adults, as all European nations have, and manage somehow to keep the "young person" away from their influence? Why should young people not be barred from the theatre as they are now from the "movies" unless accompanied by an older person? Must middle aged doctors, lawyers, clergymen, policemen, and other seasoned citizens be continually fed upon pap?

A Successful Treatment of Gonorrheal Rheumatism.—Sainz de Aja reported to the Spanish Medico-chirurgical Academy, April 14, 1913, that he had poor results with anti-gonococcic serum in gonorrheal rheumatism, not only failing to obtain curative effects, but not even shortening the course of the disease nor preventing ankylosis. Vaccines were but little more successful in his hands. With sodium salicylate, however, employed at first for diagnostic purposes, Sainz de Aja accomplished wonders, prostatitis and epididymitis yielding as well as the articular manifestations. Injected around the joint, the salicylate first increases pain, but there soon follows a sedation as great as that produced by morphine, then the swelling diminishes and amelioration is marked. Injections should be made every two days and after the third injection the improvement is generally very satisfactory. If several joints are attacked, it is best to make an intravenous injection of a 25 per cent. solution, 4 grammes being used, representing 1 gramme or 15 grains of salicylate. The veins support these injections very well and their effect is really marvellous. One patient with gonorrheal rheumatism of

the knee joint was quite relieved after two injections; another with epididymitis was able to walk five hours after a single injection. In other cases results were not quite so good, and in a very few there were none. As at present there was no specific for gonorrheal rheumatism, Sainz de Aja thought we should use sodium salicylate in all these cases, although a colleague, Garcia Sierra, had obtained favorable results from antigonococcic serum in two cases, one with both articular and cardiac localizations, the other with the disease in the elbow treated by rest and puncture without improvement.

Treatment of Phthiriasis in Women.—The difficulty of treating phthiriasis in women without sacrificing their hair makes the method advised by Whitfield, of King's College Hospital, London, of interest to the practitioner. He has the patient lying supine with the head hanging over the edge of the bed; under the head is a basin containing a one in 40 solution of carbolic acid in which the hair is steeped until thoroughly impregnated. It is important to saturate the hair above the ears and on the back of the neck, both because of the ease with which these regions escape wetting and because they are favorite points of attack for the insects. The bathing should continue for about ten minutes, after which the hair is allowed to drip without being dried or "put up." The head is then enveloped in a towel or piece of flannel after the manner of a turban for an hour or more. The hair may then be washed or allowed to dry, as the carbolic acid soon evaporates. This procedure destroys both insects and nits, and if there are any patches of impetigo they are softened by the lotion and become readily amenable to a suitable ointment. Whitfield has never noticed symptoms of poisoning from this treatment.

Rectal Anesthesia.—Rectal anesthesia with ether and olive oil seems destined to take the place of the old method of inhalation in certain lines of surgery. In an article read before the Society of Anesthetists at the N. Y. Academy of Medicine (*N. Y. Med. Jour.*, Dec. 6, 1913), Dr. J. T. Gwathney of New York, the originator, described the new technic, and stated the best mixture to be three parts by volume of ether to one of oil. More ether will irritate the mucous membrane and if less than 50 per cent. is used it does not evaporate. One ounce of the mixture is introduced for each twenty pounds body weight, or about eight ounces for the average man, at least six minutes being taken for the operation. To avoid intolerance from a too rapid flow, a very small catheter is used and only four inches of it are introduced into the rectum. Generally before the last of the mixture is introduced, the patient is in the preliminary stage of excitement, and in less than twenty minutes from the beginning, sometimes as soon as seven minutes, he is in a state of complete anesthetic coma. Should the absorption be too slow to keep up relaxation, a few whiffs of ether on a towel will restore the coma. At the end of the operation the unused balance is withdrawn and the rectum washed out by a double tube and an ounce or two of oil injected. The patient is saved all the distressing feelings of suffocation, the irritation of the bronchial mucosa and the bronchorrhea which is so often an annoying if not dangerous symptom, particularly in the alcoholic. The breathing is noiseless. No bad after-effects have been noted so far, and all who tried it are quite enthusiastic over it. For operations about the head it seems to be ideal Should the ether be absorbed too quickly and respiration come to a rest, the rectum must be emptied by a tube, while artificial respiration is practiced, carbonic oxide gas being also used if necessary. The heart does not seem to be embarrassed, for even in cessation of respiration for several minutes, there is no appearance of blood stasis. We seem to be in an age of amazingly rapid progress, for no sooner do we perfect one method of doing things, when someone discovers an entirely new method which revolutionizes everything. We hope no ill results will follow rectal anesthesia, as it seems to be ideal for most cases. It, of course, is impracticable in operations on the intestines and perhaps in all intraperitoneal work, but of the latter time only can decide. It is certainly a great boon to surgery. The fear that the anesthesia would not be under control has so far been baseless. If it should be an objection, the solution could be injected a little at a time during the operation.

SPECIAL ARTICLE.

SPECIAL CLINIC AT THE NEW YORK POLYCLINIC HOSPITAL.

Friday, November 28, 1913, was somewhat of a red letter day at the Polyclinic Medical School and Hospital, 341 West Fifteenth Street, New York City, as on that day a remarkable clinic was therein held. Dr. William Seaman Bainbridge, A. M., Sc. D., M. D., Professor of Surgery at the Polyclinic, arranged that a clinic conducted by Sir W. Arbuthnot Lane, Bart., F. R. C. S., and Herbert Paterson, Esq., F. R. C. S., Surgeons to Guy's Hospital and the Temperance Hospital, respectively, London, should take place throughout the day of November 28.

The clinic, which began at nine in the morning, did not terminate until half-past five in the afternoon, during which period not only did Sir Arbuthnot Lane, Mr. Paterson and Dr. Bainbridge demonstrate their skill as surgeons, but short addresses were delivered, recovered patients were exhibited, and apparatus and remedies were shown.

The main interest to those who attended the clinic in large numbers from all parts of the country naturally centred in Sir Arbuthnot Lane, who certainly, so far as operative skill was concerned, came up to the expectations of the onlookers. He performed three operations, the first for cleft palate and hare lip, he was the first to do the combined operation at one sitting on a child under three years of age. On this occasion the subject was only ten days old. His next operation was the radical one introduced by him in cases of severe chronic intestinal stasis and concerning which there had been so much heated discussion and wide divergence of opinion. The case selected for operation at the clinic was an ideal one in so far that it was far advanced, the arteries, heart and kidneys being diseased, and thus presented a typical instance of intestinal stasis in an aggravated form. Lane explained that in a case of this kind, it would be of no permanent good to divide adherent bands and that the only rational procedure was to "short circuit." The third operation done by Lane was that of plating for fractures, an operation by which he first brought himself into the limelight as a surgeon and which he has performed in this country on more than one occasion. Of Lane as an operator, it may be said truly that he is a master of the surgeon's craft and that his bone work is the highest expression of surgical art. The points that chiefly impress the trained observer with regard to Lane's work, are his exactitude, and his extreme carefulness in every detail. In fact, his attention to aseptic precautions is carried to the extent that every possible mode by which infection might be conveyed is eliminated as far as human foresight can effect the purpose. Whatever may have been the views of some of the distinguished surgeons present as to Lane's theories regarding the causation of intestinal stasis and his methods for relief or cure, none but must have admired his surgical technique and skill.

Mr. Paterson, who is best known for his gastric surgery, did an exploratory laparotomy. Mr. Paterson used his own needles as well as some new instruments designed by himself. The admirable arm restraining apparatus, also of his own devising, attracted a good deal of attention. The use of the apparatus overcomes the difficulty so often met with of keeping the arms of patients in a position so as not to incommode the operator. Mr. Paterson was assisted by Dr. Jerome K. Lynch, Professor of Rectal Diseases at the Polyclinic.

The operation performed by Dr. Bainbridge was especially difficult. He had operated on the same patient previously, and owing to a refusal to allow a radical operation, had merely divided the adherent bands, the consequence being that after a few weeks' relief, the last state of that person was worse than the first. Dr. Bainbridge now did a "short circuit."

Several of those who had been operated on or treated either by Sir Arbuthnot Lane or Dr. Bainbridge were presented before the audience as examples of what operation or treatment could do.

The cases shown by Dr. Bainbridge may be classed as typical, descending from the extreme type to the comparatively mild type. First type, the extreme case where the removal of the colon is necessary. Second type, less severe when short circuiting is indicated. Third type, adherent bands, cut and sutured, followed by the use of a supporting belt and the administration of Russian mineral oil. Fourth type, misplaced appendix, hanging up the terminal curved ileal loop. Fifth type, treated by exercise, diet, Russian mineral oil and belt. All examples of these cases were presented and were in capital physical and mental condition. Of Sir Arbuthnot Lane's former patients who were shown as evidence of the permanent benefit resulting from operation, one was a young woman who after suffering from intestinal trouble for a considerable time, a year ago went to England, was "short circuited" by Lane and has been in good health since. Among those present at the clinic were Dr. John Wyeth, ex-president of the American Medical Association, ex-president of the New York Academy of Medicine, founder of the New York Polyclinic Medical School and Hospital, and originator of post-graduate medical work on the continent; many of the faculty of the Polyclinic, Dr. H. L. Lotz of Australia, Dr. W. F. Campbell, president of the New York Medical State Society; Dr. H. H. Leigh of California, Professor Stewart of Bellevue Medical School and Hospital, Dr. Wormelle of Boston, Dr. Decatur of Bridgeport, as well as many others. The operating theatre was filled to overflowing with representative members of the medical and surgical profession from all parts of the country. Dr. Bainbridge is entitled to the gratitude of the profession for having given many the opportunity of witnessing the skill of the English

surgeons, and is to be congratulated upon the success with which the proceedings went off. Much of this result is due to the efforts of the staff of the Polyclinic, who one and all worked their hardest with this end in view.

Dinner to Sir Arbuthnot Lane at the St. Regis.

As a fitting climax to the clinic, Dr. Bainbridge gave in the evening a dinner at the St. Regis Hotel, at which the guests of honor were Sir Arbuthnot Lane and Mr. Herbert Paterson. If space were not lacking pages might be filled with the doings at and after the dinner, for the affair was as much a professional event as a social function. However, as space is lacking, the happenings of the evening must be epitomized. From a social standpoint everything went merry as a marriage bell, but the outstanding feature of the evening was a conspicuously lucid declaration of faith by Sir Arbuthnot Lane. The speeches generally were good, but only two or three of these will be referred to. Dr. John Wyeth made the opening after-dinner speech and in it compared Lane to Moses, in that he had led the surgical profession out of Egypt, through the desert and into the land of promise. Mr. Paterson said that his chief claim to distinction rested mainly on the fact that he had introduced Lane to America, which was surely monument enough for any man.

Sir Arbuthnot Lane spoke for an hour and a half, during which time he probably gave a longer and clearer description of his views as to intestinal stasis and treatment thereof than he has ever given before. Certainly American medical men have never listened to so able an exposition of his opinions as came from the lips of Lane on this occasion. After the speech he was freely heckled, but showed himself to be quite master of the situation. Pictures were thrown on a screen illustrating different stages of intestinal stasis. Some of these were from the X-ray work of Dr. Alfred Jordan of London, and all the cases from which they were taken had been seen by Dr. Bainbridge when in London. The other pictures were from illustrations drawn by Dr. Bainbridge's artist. Owing to assertions of many that X-ray pictures were often misleading, Dr. Bainbridge procured the services of a skilful artist who, knowing nothing of anatomy or of surgery, draws eactly what she sees, just as she sees it. If, therefore, there is anything abnormal it is put down in her sketch. At the same time a stenographic report of the case is made.

The company at the dinner numbered about 120, and among them were many of the eminent surgeons and physicians of this country, including Drs. J. W. Markoe, William Mabon, Thomas L. Stedman, editor of *Medical Record*, Dr. Walter Brickner, editor of *American Journal of Surgery*. Dr. Frank C. Lewis, editor of *International Journal of Surgery*, L. Duncan Bulkley, Virgil E. Gibney, Raymond W. Wilcox, Max Einhorn, A. W. Elting, New York; Drs. P. L. Bronson, W. LaPlace, J. A. Babbitt, Philadelphia; Professor Krönig, and Dr. C. Gauss of Frieburg, Germany.

CORRESPONDENCE.

The Suffragettes.

To the Editor of
AMERICAN MEDICINE:

Your editorials in the past have always been so calm, so judicial, that some of your utterances during the last two or three months have rather excited my surprise.

It is not my object to argue the case for woman's suffrage, to discuss its beneficial or injurious effect on human progress in general, etc. I will only state that the means used by the suffragettes in England to attain what they consider as their right, to obtain what they consider justice, to obtain what they consider necessary for the welfare of women, *are not in any way different* from the means which *the men* used in England when they were fighting for men's suffrage; with one exception: the men also broke human heads, women so far have limited themselves only to the breaking of windows.

I might also say that to wish women dead because they are using tactics in their fight for woman's rights which displease us, is not quite chivalrous. I fear that the writer of the editorial in question is entirely out of sympathy not only with woman suffrage but with any revolutionary movement in the world, and he would probably scout the statement that revolutionary movements are essential to progress.

Respectfully yours,
WILLIAM J. ROBINSON, M. D.
12 Mt. Morris Park W.,
New York City.

[We fear Dr. Robinson has mistaken the editorial referred to. Nothing that has ever appeared in AMERICAN MEDICINE has deprecated any revolutionary movement founded on justice and right or conducted intelligently and properly. We would respectfully call attention to page 774]. EDITOR.

The Question of Preservatives.

To the Editor
AMERICAN MEDICINE:

In looking over my copies of AMERICAN MEDICINE, I notice in your February, 1913, issue an article on Benzoate of Soda, in which you say in part:

> Evidence has been brought forward showing that certain canning establishments in Baltimore for instance, have been able to utilize half decayed, filthy and practically refuse vegetables and fruits

through the aid of sodium benzoate. Putrefactive changes have been arrested, disagreeable odors removed and sour disagreeable tastes more or less completely corrected, with the result, according to good authority, that material totally unfit for food has been made presentable and foisted on those who have no way of knowing the real situation. If all this is true and benzoate of soda makes such abuses possible its use should certainly be subjected to rigid regulation.

In reference to the above quotation, I beg to say that it has never been proven that odorless, comparatively tasteless substances like Benzoate of Soda or Boric Acid could be used to convert half decayed, filthy and practically refuse vegetables and fruits. If one-tenth of one per cent. of Benzoate of Soda or one-half of one per cent. of Boric Acid possessed the miraculous power of converting so-called rotten, putrid food into a seemingly edible product, it certainly would be a miracle.

It has been frequently asserted that rotten and putrid skin and cores of tomatoes are utilized by adding one-tenth of one per cent. of Benzoate of Soda. The facts of the case are that one per cent. of Benzoate of Soda or one-half per cent. of Boric Acid cannot be utilized to mask such inferiority in food products. Rotten skins and cores ground up and boiled, with the addition of mustard, vinegar, spices and sugar, can be so masked as to make an edible product without the addition of one-tenth of one per cent. of Benzoate of Soda.

According to the United States Dispensatory mustard is a poison which pervades the entire system. Vinegar must contain four per cent. of acetic acid, which is a caustic poison, to comply with the pure food and drugs act. When this acetic acid is percolated through spices there is produced an acetic extract of spices, which is a powerful preservative. This preservative is used by the manufacturers, who claim that no chemicals are used in the preparation of their products.

It will be a simple matter, if you are desirous of confirming the above, to conduct some experiments along these lines.

Yours very truly,

H. L. HARRIS.

To Prevent "Bichloride" Poisoning.

To the Editor
AMERICAN MEDICINE:

We have read with interest the article on Mercury Poisoning on page 760 in the November number and we wish to call your attention to what we consider an improvement over any shaped tablet—and that is the Antiseptic Leaf which we are just putting on the market.

This is a piece of heavy porous paper on which is absorbed the same amount of corrosive sublimate as is contained in the ordinary Wilson Antiseptic tablet.

The solution from this Antiseptic Leaf is more readily accomplished than the average and none of the fatalities so generally reported of late would have occurred with the Antiseptic Leaves, except perhaps the instance that you relate of the two men who took thirty grains each of the salt on daring each other in a drunken bout. No sober person would attempt to eat one of these Antiseptic Leaves and he would not succeed very well should he do so unless, of course, he was closely related to the goat family.

These leaves are put up in packages of twenty-five, each bundle being wrapped in self-sealing water-proof paper and enclosed in a carton. On each leaf is printed in red ink the word POISON and a statement of the contents—also the strength of the solution which may be prepared from the entire leaf or a quarter of it—which may be cut off according to the sectional lines printed thereon.

Very truly yours,

THE WM. S. MERRILL CHEMICAL COMPANY.

[So much interest has been taken in the marketing of bichloride and the subject is so important that we are pleased to publish the above letter describing a novel way of solving the problem presented. EDITOR.]

The Cause of Mucous Colitis.

To the Editor
AMERICAN MEDICINE:

Permit me to say a few words to your editorial under this title in the November issue of your esteemed journal. It is now about ten years that I discovered and described the cause and the therapy of mucous colitis, but every article on this subject which I have read during this decade is a disappointment to me because I fail to see mentioned what I have discovered and described concerning the etiology and therapy of this affection.

There are different theories in regard to the etiology of mucous colitis, but none of them is plausible except the atonic theory. Mucous colitis is truly and positively one of the manifestations of enteroptosia. Whether enteroptosia is the cause of mucous colitis in all cases has to be decided by further observations. Thus far some writers have paid attention to the coexistence of enteroptosia in cases of mucous colitis, but this is all, none of them has thought of a relation between the two. A positive fact is that the symptoms of mucous colitis, the mucous colic, have disappeared, that permanent cures resulted after the enteroptosia had been overcome by means of the application of my abdominal adhesive plaster belt.

When I spoke of my experience in the treatment of mucous colitis by means of this belt before the Philadelphia County Medical Society on Oct. 14, 1908, I added that I felt embarrassed to tell the facts how after application of the belt, mucous colic was relieved promptly, completely and permanently, for fear that I might be accused of exaggeration, when

one of the members of the society rose and confirmed all the praise I had given. He described a case of eight years' standing, in which a complete recovery was obtained exactly as I had mentioned: promptly, completely and permanently after the strapping.

Your editorial quotes several views which have been given by different authors as to the cause of mucous colitis and we could enumerate a great many more, mine is the only one which can be proven *ex juvantibus*.

A. ROSE.

ETIOLOGY AND DIAGNOSIS.

Hemiplegia Following Syphilis. (*The Lancet*, Oct. 18, 1913). Dr. Murdock Mackinnon has called attention to the fact that paralyses from syphilitic arterial disease may occur a few months or even as early as six weeks after the primary lesion. Hemiplegia generally occurs in persons less than forty, when hemorrhage from atheroma may be excluded, although syphilitic arteries may rupture in these early years. The lesions are multiple and succeeded one another, so that paralyses may appear in two or more sets of muscles.

In its appearance and mode of onset syphilitic hemiplegia may be sudden, but as a rule it comes on gradually with tingling and paresis of one or more limbs. It often occurs during sleep or when the patient is resting, the flow of blood being then slower and the conditions favorable for the formation of a thrombus in the narrowed lumen of the blood-vessels. In none of the cases mentioned was there loss of consciousness, but it may be of interest here to note that apart from the occurrence of hemiplegia, severe headaches and epileptiform seizures occurring for the first time in a man who hitherto has been free from these are frequent accompaniments of cerebral syphilis and often precede the onset of hemiplegia.

If these cases are seen early and given appropriate anti-syphilitic treatment, there may be complete and rapid recovery. If the cases, however, are not seen early and properly treated, the result of interference with the blood-supply to the affected part of the brain is softening and irreparable damage to the nerve cells. Hence the importance in such cases of early diagnosis and treatment, and when a history of syphilis is not available, valuable information might be obtained by the Wassermann test and examination of the cerebro-spinal fluid. The interval of time elapsing between the primary infection and the appearance of the hemiplegia varied, but in three out of the four cases it occurred within nine months, the earliest being five months. In the other case syphilis was admitted, but the patient was uncertain as to the date of infection.

TREATMENT.

Typhoid Vaccine as Prophylactive and Therapeutic Agent.[1] Immunization with typhoid vaccine is now a recognized procedure and should be regularly employed, especially where individuals are directly exposed to typhoid infection. It affords protection for one year and in all probability for a longer period. The dosage generally employed is 500,000,000 for the first inoculation and 1,000,000,000 for two subsequent treatments. Inoculations should be made at about ten-day intervals. Typhoid vaccine is entirely harmless. In some instances febrile reactions with a feeling of malaise will follow the inoculation, but this passes off within a few days. Local inflammatory reactions at the point of inoculation are also observed, but this is of no consequence.

Extensive experience has conclusively demonstrated that inoculations of typhoid vaccine during the course of the disease, hasten the development of immunizing substances with resulting benefit to the patient. In fact it has been found that an active immunizing response is obtained in less time in cases of typhoid fever than where typhoid vaccine is given to healthy individuals. Due to the existing infection, the tissue cells of the body have probably undergone some preparatory change for the production of immunizing materials. Very frequently material improvement, as indicated by a reduction of temperature and a better heart action, may be observed within one or two days after the first inoculation. The beneficial influence of typhoid vaccine on the nervous system has been quite generally observed by those reporting cases treated; the mental condition remaining much brighter and the suffering incidental to the disease being greatly relieved. The general expression of the patient is better; the eyes remain bright, the tongue clears up, and the appetite improves.

From information at hand, it appears that where typhoid vaccines are used early the mortality rate is very low. The milder cases will run a short course, reaching a normal temperature in 10 or 15 days, and in the more severe cases the course of the disease will become so modified that the more serious complications will not often develop. The advantages of early treatment are so important that, in cases of a questionable diagnosis the patient should be given the benefit of the doubt and get the vaccine. Should no typhoid infection exist, no harm will result from such practice. To wait for a positive Widal would delay treatment too long in many cases. If an early positive diagnosis is desired, a bacterial examination of the blood is best.

Treatment should be started with 250,000,000 or 300,000,000 and the dose increased 100,000,000 or 200,000,000 each subsequent inoculation

[1] Reprint from *The Bacterial Therapist*, August, 1913.

until 1,000,000,000 is reached. Inoculations should be made at from three to five-day intervals. The preparation usually employed is a suspension containing 1,000,000,000 organisms per cc. It is supplied in glass sealed ampules containing 1 cc. or our regular bulk packages of 5 cc. or 18 cc.

The Treatment of Infections by Means of Fixation Abscesses.[1]—Dr. de Lostalot of Biarritz is trying to revive a method invented by Fochier more than 30 years ago. He says that those who have tried it are convinced it is of great value.

"The cases in which it may usually be employed are the following: puerperal septicemia, infectious pseudo-rheumatism, pneumonia, appendicitis, typhoid fever, and similar conditions.

The method of forming a 'fixation abscess' is as follows: Two cubic centimeters of pure essence of turpentine are injected under the skin in the gluteal region. In a case of appendicitis it is important to keep as far away from the abdominal wall as possible in case an operation may become necessary later. It is hardly necessary to say that the most rigorous asepsis must be employed in making the injection. A sharp pain will follow at once, but this may be immediately relieved by the application of a hot fomentation. At the end of three days, or four at the most, the abscess will have formed sufficiently. There is no need of a large collection of pus for the production of a phagocytosis. I have often noticed a lowering of the temperature before the formation of the abscess. A small incision, from 2 to 5 centimeters in length, should then be made to evacuate the pus, but the abscess must not be drained, and twice a day a Bier's cup should be applied. At the end of a week the abscess will be healed and the patient will be cured.

As to its mode of action it has been suggested by M. J. Carles, of Bordeaux, that as the pus in a fixation abscess is sterile, for it contains only dead microbes, the abscess attracts micro-organisms from the blood, and that they are killed when they arrive there, though it is certain that in some cases living germs are to be found in a 'fixation abscess.' As the mode of action is up to the present by no means certain it is best perhaps to acknowledge that the method is really empirical, though of great value.

I am very anxious to extend more widely the use of this method of treatment, and therefore in this paper I am giving an account of the procedure and the conditions in which it is likely to be of use. Certain complications have been attributed to this method, such as pain, separation of the skin, and secondary infection of the abscess, but these when they occur are really due to the mode in which the treatment is applied and not to the method itself, for if the treatment is properly carried out they do not occur. It is of the greatest importance that time should not be lost in trying other methods before employing this; it is far better to form a 'fixation abscess' and then the other methods can be used as well."

[1] *Lancet*, Oct. 18, 1913.

The Treatment of Ankylostomiasis.—Dr. R. D. Keith of Singapore[1] has found that bismuth given with thymol or eucalyptus by delaying the passage of the anthelmintics through the intestine increases their efficacy. He also mentions the fact that the mucus in the intestines frequently protects the worms from the drugs, and that there may be reinfection from larvae which were on their way from skin to intestine when treatment had apparently cleared the canal of all worms.

"As regards treatment, one concluded that if the percentage of hemoglobin is in the neighborhood of 60 it may be reckoned that with suitable treatment the ova will disappear in the course of a few days. With a percentage of between 45 and 55, treatment will be more difficult. Anything below 40 per cent. will indicate that great patience will have to be exercised before recovery can take place; it will not be a question of weeks but of months, and this is certainly so when we get as low as 10-20 per cent. of hemoglobin. Several of these cases with a very low hemoglobin index have been under one's observation and treatment for months. It is true that the general condition improves with rest and diet. As a rule, the edema soon disappears and the patient feels better, but the ova, though they decrease in number rather quickly at first, and then more gradually, do not disappear entirely for months, while the hemoglobin index remains persistently about its original level.

Intensely fatty structures such as we find in this disease cannot be expected to return to a healthy condition quickly, and we must have patience while the fat is being absorbed and the tissues are returning to a healthy state. From recent results one has come to the conclusion that beta-naphthol in 30-grain doses the first thing every morning is likely to prove more effectual than eucalyptus or thymol. The necessity for starving patients while the treatment is being carried out is by no means evident; indeed, in bad cases it may even be harmful. More especially is it unnecessary if the drug is given the first thing in the morning. There will not be much food found in the upper part of the small intestine five or six hours after an ordinary meal, so that if the drug be given the first thing in the morning there is no necessity for starvation. It is true that large doses given frequently of these drugs are apt to irritate the mucosa of the stomach and intestines, but that is no reason why we should refrain from employing them in this way. Energetic treatment is needed, and I have never seen any ill-effects follow from such measures."

[1] *Lancet*, Oct. 18, 1913.

Two Years' Experience with Salvarsan.[1]—Sir Malcolm Morris and Dr. Henry MacCormac have published the results of their experience with salvarsan at the Seaman's Hospital Greenwich, London, and have also given a synopsis of the voluminous literature to date. They had no fatalities, but have collected from the literature the histories of 21 deaths following one injection, and 18 following two or more doses. There are ugly rumors that the large number of deaths from it in Paris have caused some of the syphilographers at the Saint Louis Hospital to forbid its use, but Morris merely mentions hearing of some cases which died during the injection. The deaths are about equally divided between intravenous and intramuscular. Many developed coma, jaundice, cyanosis and convulsions. There seemed to be anaphylactic phenomena in these as well as other non-fatal cases—a supersensitiveness of tissues to arsenic. This is curious, as the spirochetae may develop a resistance to arsenic. Ehrlich has demonstrated that all trypanosomes are capable of developing such resistance. Deaths are largely in those having paresis, tabes or other forms of involvement of the nervous system or diseases of the heart and arteries.

"In all our primary cases the disease has been immediately arrested, and in none which we have been able to follow up have secondary symptoms developed, with the exception of sore throat. In secondary and tertiary cases the skin lesions, without a single exception, have rapidly disappeared.

In secondary cases there has been rapid disappearance not only of cutaneous but also of mucous membrane lesions. The rash has quickly faded, but some pigmentation has usually persisted for a considerable time. The general condition also has greatly benefited, the appetite improving, and the patients putting on weight and gaining color.

The effect of salvarsan in reducing the temperature in secondary cases is remarkable. When syphilitics are being treated as out-patients the fact that they are suffering from slight fever is apt to be overlooked. Sometimes the fever is more than slight.

In tertiary cases, even in cases that had proved obdurate to mercury and iodide of potassium vigorously and perseveringly administered, we have not had a single failure where the integumentary system was attacked. Almost as much may be said of lesions of the tongue. Here, however, we have two disappointments to record. In one case the patient, a male between 45 and 50, who had received one injection of salvarsan, returned a week later for a second injection, when it was found that in the interval an active carcinoma had developed and that the submental glands had become the seat of metastases. In the other case, that of a man of 50 with severe lesions of the tongue, there was also nephritis, so that the dose of salvarsan was limited to 0.2 grm. Even this was borne so badly that no more salvarsan was given. The patient succumbed to carcinoma six months later.

As between the two preparations, our results incline us to give the preference to the earlier one. Neosalvarsan is not only less stable than salvarsan, so that unless it be used at once its toxicity may be intensified to the danger point, but we have found it to be less rapid in its effects, lesions disappearing less readily under its influence, and the Wassermann reaction remaining positive longer.

Importance of Early Treatment.—Desirable as it is to secure the rapid disappearance of the secondary or tertiary phenomena, it is of still greater moment to abort syphilis in the first stage, so that it may never develop into a constitutional disease, or to arrest it at the very beginning of the secondary stage. Now that the presence of the spirocheta can be demonstrated with comparative ease in the primary sore it is no longer necessary to wait even for induration. Neisser's experiments with apes show that the virus has found its way to the internal organs within 16 days of infection, that is even before the appearance of the primary sore, and the generalization of the disease appears to be complete, as a rule, by the time the chancre appears. The obvious inference is that whenever a suspicious sore comes under notice it should be examined for spirochetae without delay, and that whenever a possibly syphilitic rash is observed the Wassermann test should be applied. If in either case the result is positive and no contraindications are present, an intravenous injection of salvarsan should be given, while in the former case the sore should, if possible, be excised or destroyed with the cautery. A mercurial course should at the same time, in our opinion, be begun. After a few days a second dose of salvarsan should be given, and if after another short interval the Wassermann reaction has not not become negative, a third. In all cases the course of mercury should continue, with intermissions, for two years. In cases treated thus, the vast majority of the spirochetae will as a rule be destroyed by the salvarsan, and the remainder disposed of by the mercury.

Is Salvarsan a Cure?—In connection with a disease in which there may be recrudescence years after the disappearance of all symptoms, and in which the Wassermann reaction may return to the positive although there are no further clinical phenomena, the term 'cure' must obviously be used with great caution. The most that we are able to say from our own experience is that in two of our cases treated with salvarsan alone the Wassermann reaction has remained negative after the lapse of a year. At the present time the only conclusive evidence of cure is reinfection, of which we have had no instance. Cases of reinfection have, however, been recorded by, among others, Colonel T. W. Gibbard, R. A. M. C., who last year reported five such cases in the Rochester Row series. In each instance the sore was on a fresh site and occurred within the incubation period from the date of exposure to infection, and though it is possible that the

[1] *Lancet*, Nov. 1, 1913.

lesions were chancriform gummata, this is rendered very improbable by the large number of spirochetae present in each lesion. But although salvarsan may in some cases abort the disease in the primary stage, and may effect a permanent cure in later stages, these results cannot be confidently counted upon, and prudence dictates that in every case this remedy should be supplemented by a course of mercury. On the other hand, that salvarsan has a more rapid and powerful effect upon the spirochete than mercury seems to us indisputable. In some of our cases malignant and less severe types of syphilis that had proved absolutely resistant to mercury, or to mercury *plus* potassium iodide, have promptly yielded to salvarsan. With mercury alone, however administered, lesions are much more persistent, and in nearly all cases the Wassermann reaction remains positive during the first year and in about a third of the cases for over two years. The superior virtue of salvarsan is therefore demonstrable, and in every case in which it is not contraindicated it ought, in our opinion, to be administered as soon as the diagnosis is established."

It is quite evident now that though Ehrlich has made a great discovery, he is still far from having produced a safe remedy which will cure in one dose as was so confidently claimed at first.

The Dangers and Disadvantages of Spinal Anesthesia.[1]—These have been described by Dr. W. Wayne Babcock of Philadelphia, who shows that ether has caused far more deaths than we have generally supposed. Of course some hospitals report many thousand etherizations without a death, but in general practice where it is not possible to select one's cases, the deaths are more than one in 500, and in some localities, one per cent. His conclusions are as follows:

In our personal experience ether and spinal anesthesia have been about equally dangerous, ether from exigencies compelling a profound narcosis or an imperfectly trained anesthetist; spinal anesthesia from an unwise selection of patients and an imperfect knowledge as to the physiological action of the drug. With careless or unskilled use, spinal anesthesia is doubtless much more dangerous than ether.

The morbidity of spinal anesthesia as expressed by nausea, vomiting, headache, backache, post-operative pain, and albuminaria is less than that from ether.

Ocular palsy may result from spinal anesthesia where contaminated or deteriorated solutions are used. A lateral deviation of the needle with injury to a nerve root may be followed by severe neuritis and secondary palsy.

Secondary degeneration of the spinal cord from the chemical action of stovaine, properly introduced in human beings, for purposes of spinal anesthesia is doubted.

Functional or neurotic symptoms occur after spinal anesthesia as they do after etherization, and may, to the annoyance of the surgeon, be attributed by the patient to the injection. If a steel needle be used it may be broken under the skin during the injection.

Danger symptoms may follow if the patient be moved immediately after the injection or if the proper posture to prevent the anesthetic from reaching the upper nerve roots be not maintained for at least one-half hour after the injection.

Repeated intradural injections seem to be harmless.

Spinal anesthesia is dangerous in circulatory subtension, conditions greatly depressing the respiratory centers, and shock, collapse, advanced myocardial disease, and large intrathoracic effusions. It is more dangerous for operations upon the upper abdomen than those upon the lower. It does not obviate the danger of sudden cardiac arrest in operations for large uterine fibroids.

The newer methods of anesthesia, including spinal anesthesia, nitrous oxide oxygen, intravenous anesthesia should have their use restricted to selected patients by those who have properly qualified themselves.

If the patient cannot be properly watched for one hour after the injection, if the operator does not understand the dose and mode of diffusion of the drug, or if he is unprepared to meet emergencies, then spinal anesthesia should not be employed.

For general indiscriminate use ether remains the standard anesthetic despite its many drawbacks.

Fallacies of the High Enema and the Rectal Tube.[1]—Dr. C. C. Mechling of Pittsburg, Pa., shows by radiographs that:

1. A rubber rectal tube, alone, cannot be passed beyond the rectum. Rectal valves, folds of mucous membrane, or the pelvi-rectal flexure furnish the obstructions.
2. There is no enema except the "low enema"; the term high enema is a misnomer.
3. The colon can be filled by rectal injections, the fluid being carried by gravity or retrograde peristalsis, and not by passing collapsible tubes high into a loosely supported and collapsible loop of colon.
4. For examination and treatment of these organs, the easily manipulated pneumatic instruments are the only safe and practical ones.

To write some earnest verse or line,
Which, seeking not the praise of art,
Shall make a clearer faith and manhood shine
In the untutored heart.

He who doth this, in verse or prose
May be forgotten in his day,
But surely shall be crowned at last with those
Who live and speak for aye.

JAMES RUSSELL LOWELL.

[1] *N. Y. Med. Journal*, Nov. 8, 1913.

[1] *Amer. Jour. of Surg.*, Nov., 1913.

BINDING LIST APR 1 1934

R
15
A8
v.19
Biological
& Medical
Serials

American medicine

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

STORAGE